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TO
CHARLES COWAN, Esq.,
OF LOGAN HOUSE.

DEAR SIR,

It is highly fitting that this book should be inscribed to you, since the knowledge used for writing it was gained by my dwelling for years amongst the inmates of our Scottish National Institution at Larbert; and of those who have united their efforts to rear and maintain it, none has done more than your venerated father, yourself, and others of your kindred.

It is a great pleasure to me not only to express the high esteem which I have of your unwearied public spirit, great kindness of heart, and practical benevolence; but also to give a voice to the gratitude of those whose cause you have so often advocated both in public and in private, and who have reaped so much from your generous help, counsel, and sympathy.

I have the honour to be

Your obedient servant,

WILLIAM W. IRELAND.

LARBERT INSTITUTION,
17th April 1877.

PREFACE.

THE Earl of Derby, in an Address which attracted much attention as an intellectual effort, remarkable in one whose studies and pursuits tended to lead him in a direction quite away from medical research, made the following observations:—"Now, many of you have seen what is done in this institution (the Royal Albert Asylum at Lancaster), and, as far as care and efforts towards cure are concerned, I think you will agree with me that nothing can be more satisfactory; but still, if we are permanently to stop there, we should only have accomplished half the work which, as I conceive, we have taken in hand. I don't hesitate to say that the greater part of the value of an asylum or an hospital consists in its usefulness as a school where the particular complaints there treated may be studied, not merely that we may know how to cure them or how to alleviate them when they come before us in individual cases, but, if that is possible, that we may trace them back to their causes, and so guard against them in the future. Now that, I am afraid, we must allow, is untrodden ground." I cannot claim to have made much progress in the path thus

indicated, and the principal merit of this work probably is that it brings together the widely-scattered studies of able observers on the subject of idiocy and imbecility.

Though the book is mainly intended for medical men, it is to be hoped that some parts of it will be found also useful to those who have the care and guardianship of idiots and imbeciles, or who take a philanthropic interest in provisions for their welfare.

I have much pleasure in acknowledging the generous assistance which I have received from Doctors George Shuttleworth, Fletcher Beach, J. Langdon Down, and Mr. Andrew Mackay, German Consul at Grangemouth, who have all furnished me with notes and information very useful in writing the book. Sir Charles Trevelyan most kindly gave me a number of useful pamphlets on idiocy and kindred subjects which had come into his possession, and used his influence with the Special Committee of the Charity Organisation Society upon Idiots, Imbeciles, and Harmless Lunatics, to procure me further assistance. I beg here to record my thanks to the Committee for sending to me for consultation the valuable collection of documents made through the Foreign and Colonial Offices and other agencies, bearing especially upon the condition of idiots and imbeciles, the deaf and dumb, and the blind, in Great Britain and the Colonies, as well as on the Continent of Europe.

I have also derived much assistance in books and information from Dr. W. A. F. Browne, Dr. T. Clouston, Dr. T. Grainger Stewart, and Dr. J. Batty Tuke, Dr. John Fraser, and Professor Turner. Nothing has given me greater pleasure than the aid which I have derived from so many of my friends, and the kind and courteous manner in which it has been given.

Many passages in the book are reproduced from papers and reports which have already appeared in the *Journal of Mental Science*, the *Edinburgh Medical Journal*, and other publications. The "Inquiry into some Accounts of Children being fostered by Wild Beasts," in Chapter XX., is reprinted, with very little alteration, from the article in the *Journal of Mental Science* for July 1874 and the subsequent correspondence.

WILLIAM W. IRELAND.

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ERRATUM.

Page 234, line 12, for *sufficient*, read *insufficient*.

CHAPTER I.

DEFINITION OF IDIOCY AND IMBECILITY.

As idiocy is originally a popular, and not a scientific, term, it is difficult to frame a definition comprehensive enough to include all the meanings in which it has been used. In a general sense, however, it may be said that the condition which it signifies is easily recognisable, and the word idiocy, or some other equivalent term, is to be found in the languages of all civilised nations, and probably in all languages whatever, which have any power or copiousness of expression. The following definition seems to include both the popular and scientific use of the term. Idiocy is mental deficiency, or extreme stupidity, depending upon mal-nutrition or disease of the nervous centres, occurring either before birth or before the evolution of the mental faculties in childhood.

The word imbecility¹ is generally used to denote a less decided degree of mental incapacity. Thus, when a man distinguishes between an idiot and an imbecile, he means that the mental capacity of the former is inferior to that of the latter.

Idiocy bears much resemblance to the ordinary condition of infancy. In idiots the mental state may be said to be fixed in the infantile state, or very slowly to move

¹ Drs. Bucknill and Tuke, in their well-known *Manual of Psychological Medicine*, thus write of the term "imbecility":—"Some writers have restricted the use of this term to the loss of mental power supervening in infancy; others have applied it indifferently to a congenital and infantile condition; but all agree in employing the term to denote a minor degree of mental deficiency than idiocy."

towards the efficiency and maturity of the motor and reasoning powers which characterise the normal adult. Idiocy could not readily be confounded with any form of insanity, though it has a superficial resemblance to dementia, much in the same way that the dotage of old age sometimes resembles the weakness of childhood. Dementia begins with average intelligence, which gradually diminishes ; idiocy begins with a low amount of intelligence, which gradually increases. The intelligence of the dement and of the idiot may be for a time about equal ; but the one has reached it by the process of subtraction ; the other by the process of addition. As a rule, the intelligence in dementia is always getting less ; in idiocy, on the contrary, it generally slowly improves until the period of adolescence is reached. In dementia it is always difficult to say how much intelligence remains. Some demented have not lost the power of thinking or of concentrating their attention, but seem to abstain from doing so because any mental exertion gives them pain ; and, under some unusual motive or stimulus, they occasionally manifest powers supposed to have been lost for years. Sometimes, too, though rarely, dementia ends in rapid and complete recovery.

The expression of the idiot is generally soft, good-natured, and confiding ; that of the dement is heavy and sullen ; past griefs and pain have left their deep cross furrows on his brow and traced broad wrinkles below the eyes, while the forehead of the idiot remains smooth till a late age. Sometimes, in asylums, where the history is lost, the chronic dement who has begun to stagger in his gait might be confounded with the grown-up idiot who, with his proneness to imitation, may simulate the appearance of the insane with whom he has been long shut up, but the downward progress of dementia would soon distinguish its victim.

CHAPTER II.

STATISTICS OF IDIOCY.

ATTEMPTS have been made to ascertain the number of idiots and imbeciles in most countries which take a census of their population, but the results are only approximative. Everywhere parents are unwilling to return their children as afflicted with a hereditary failing, and everywhere they are slow in recognising its existence in their offspring. Where the number of idiots or imbeciles is reported as small, this may be owing rather to the greater reluctance of the people to make true returns, or to the negligence of those appointed to look after the census, or their deficient means of checking false or imperfect statements, than to a smaller proportion of idiots to the rest of the population.

In some countries especial care has been taken to get the number of idiots ; and in small states, where the condition of families is more narrowly observed, the number of idiots given in the returns is almost always higher than in countries with a large population like France or Great Britain. In all countries we may safely assume that few children are returned as idiots below four or five years of age ; and as the mortality amongst such children is very great, it is thus possible that as many as one-half of the existing idiots are never returned at all.

Keeping these explanations in view, it may be well to give a short resumé of what has come into our hands as to the diffusion of idiocy in different countries.

Much of the information given has been taken from

documents and statistical tables collected from all countries by the special committee on idiots, imbeciles, and harmless lunatics, called together by the Council of the Charity Organisation Society, and which met in London during the months of May, June, and July 1876.

According to the returns of the commissioners for the census of 1871, "the total number of persons described as idiots or imbeciles in England and Wales is 29,452, the equality of the sexes being remarkable—namely, 14,728 males and 14,724 females. Compared with the entire population the ratio is one idiot or imbecile in 771 persons, or 13 per 10,000 persons living. Whether the returns are defective owing to the natural sensitiveness of persons who would desire to conceal the fact of idiocy in their families, we have no means of knowing; but such a feeling is no doubt likely to exist among those who look upon mental infirmity as humiliating, rather than as one of the many physical evils which afflict humanity." This number of 29,452 is admitted to be 25 per cent below the mark.¹ The equality of the sexes was certainly not expected. The number of applications for the admission of boys to training-schools for imbeciles in England has always been so much greater than those for the admission of girls, that it was concluded that there must be more of the male sex affected with mental deficiency in infancy, and it will be seen that the census of other countries confirm this view. Deaf-dumbness, a disease often commencing in childhood, is also common with males. The following table gives their numbers at different periods of life :—

¹ "Since July 1876 forty-two idiots and imbeciles have been admitted into the Earlswood Asylum, and the superintendent could not find that in any one instance the patient had been described as such in the census." See *Education and Care of Idiots, Imbeciles, and Harmless Lunatics: Report of a Special Committee of the Charity Organisation Society, London, 1876.*

	Total of Idiots and Imbeciles.		Males.		Females.
Under 5 years . .	428	...	210	...	218
5 and under 20 . .	7,447	...	4,196	...	3,251
20 and under 60 . .	17,435	...	8,512	...	8,923
60 and upwards . .	4,142	...	1,810	...	2,332
	<hr/> 29,452		<hr/> 14,728		<hr/> 14,724

In considering these figures we see that the majority of females is determined by the returns of idiotic and imbecile women above twenty. It is likely that many of the 2332 above sixty, returned as imbeciles, were demented or harmless lunatics. The numbers under five years are of course very incorrect.

As regards the distribution of idiots and imbeciles, the largest proportionate numbers are in the South-Eastern Division, which includes the Earlswood Asylum, and other institutions containing persons of this class. The numbers are also above the average, in proportion to the general population in the South-Midland, Eastern, South-Western, and West-Midland Divisions, and below the average of England in the London, Northern, York, and North-Western Divisions.

The ratio of idiots or imbeciles to the population in the several divisions was as follows :—London, 1 in 1708 ; South-Eastern, 1 in 518 ; South-Midland, 1 in 641 ; Eastern, 1 in 636 ; South-Western, 1 in 669 ; West-Midland, 1 in 642 ; North-Midland, 1 in 666 ; North-Western, 1 in 833 ; Yorkshire, 1 in 901 ; Northern, 1 in 1028 ; Wales, 1 in 739 ; England and Wales, 1 in 771.

SCOTLAND.

In the census of 1861, only 481 were returned as imbecile, or idiots, in Scotland, but from evidence in the posses-

sion of Dr. W. A. F. Browne, then Commissioner in Lunacy, 1220 males and 1016 females, in all 2236, had been about the same time actually visited by him, or by other medical men upon whom he could rely.

More trouble seems to have been taken with the census of 1871, for there were returned in Scotland, under the heading of "imbecile or idiot,"—

	Under 20.	Above 20.	Totals.
Males . . .	754	1550	2304
Females . . .	567	1750	2317
			<hr/> 4621

26 under twenty years of age are returned as paupers, but this cannot include those in asylums. 299 above twenty were stated as paupers; 29 male and 28 female imbeciles were earning their living by field work.

The number of the deaf and dumb stood—

	Under 20.	Above 20.	Totals.
Males . . .	469	664	1133
Females . . .	376	578	954

Only 82 of the deaf and dumb were paupers. Of the blind in Scotland—

	Under 20.	Above 20.	Totals.
Males . . .	238	1252	1490
Females . . .	185	1344	1529

There is no doubt that these returns still fall short of the actual number in Scotland. No one who knows the habitual caution and reticence of the Scotch, and their dislike of making a damaging admission as to family matters, would be surprised to know that the total of imbeciles and idiots was really double the number of what has been given in the census. The number of imbecile women above twenty is suspicious; probably it was used as a less disagreeable term than insane.

IRELAND.

The following table is taken from the report of a committee which met in Dublin in June 1876¹—

IRELAND, 31ST DECEMBER 1874.

How Placed.	Idiots and Imbeciles.		Lunatics.	
	Number.	Per Cent.	Number.	Per Cent.
Total number . . .	8,151	100	10,236	100
In Workhouses . . .	1,740	21·4	1,401	13·7
In Asylums . . .	638	7·8	7,802	76·2
In Gaols . . .	...	...	2	...
At large . . .	5,773	70·8	1,031	10·1

There is no census of idiots as distinguished from lunatics in Canada or in the other British colonies or possessions.

FRANCE.

From the Statistique de la France for the year 1872, it appears that there were of those afflicted with—

Mental Diseases.	At Home.	In the Asylums.	Total.	Proportion to 10,000 Inhabitants.
Mad	20,020	32,815	52,835	14·63
Idiots and cretins	30,984	4,149	35,133	9·74

Of these, 20,456 were male idiots, and 14,677 were females; thus there were 139 male idiots for every 100 female idiots.

With lunatics the majority of the sexes was reversed, there being but 88 males to 100 females.

In Savoy and the Hautes Alpes the proportion of idiots

¹ Report of the Charity Organisation Committee as to the Legal Provisions in Ireland for the Care and Instruction of Imbeciles, Idiots, Deaf and Dumb and Blind, etc. Dublin, 1876.

was highest ; there were 29 to every 10,000 inhabitants ; in the departments of the Bouches de Rhône, Hérault, and la Vendée, the proportion was only 5 to the 10,000. But the inquiries of a Special Commission into the diffusion of cretinism in France, published in 1873, brings out a much larger number of idiots. From their returns there were 122,000 cretins and idiots in France, and the proportion of cretins and idiots in the Hautes Alpes was 22, and in Savoy, 16 to the 1000.

GERMANY.

The following data are principally taken from the *Journal of the Royal Prussian Statistical Office*, compiled from the census of the year 1871.¹ The last census in 1876 is not yet ready to be used in our inquiry. Probably there will soon be a special census for the insane. I cannot give the number of idiots in the whole of North Germany, but only the results of the census in Saxony, Mecklenburg, and Hamburg are awaiting.

There were found in Prussia

51,808 male

49,807 female

In all 101,615 persons with physical and mental deficiencies. This comprised blind persons, deaf mutes, idiots not deaf and dumb, idiotic deaf mutes, and insane persons.

Of these last there were

10,187 males

11,132 females

In all 21,319 insane.

¹ Here I reproduce a portion of the letter of Dr. Kind, Medical Superintendent of the Idiotten Anstalt at Langenhagen, which I translated for the use of the Committee.

Of the idiotic there were

17,437 males
15,566 females

In all 33,003 idiots not deaf and dumb.

Besides these there were

382 males
354 females

In all 736 deaf and dumb idiots.

This makes a total of 33,739 idiots and imbeciles. Of this last class there were found living in families and private households,

16,133 males
14,395 females

In all 30,528.

In Institutions for Idiots and similar establishments there were

1686 males
1525 females

In all 3211.

According to Kollmann, in the Grand Duchy of Oldenburg the number of those who are mentally afflicted in early youth is 996; a third of these have reached the age of twenty.

In the Duchy of Brunswick in 1868, where the male and female population were nearly equal (151,213 males to 151,588 females), the number of male idiots was 250, or 1 in 605; of female idiots 225, or 1 in 674 of the general population.

In Baden, out of a population of 1,369,291, there were found, in 1873, to be 1915 insane persons, 316 epileptics, 2146 imbeciles (Blödsinnige) and cretins; there was thus one

insane person to every 720 of the population, and one imbecile or cretin to every 640.¹

In the Tyrol, in 1872, out of a population of 779,072 inhabitants, there was found to be 627 males and 542 females insane, and 236 males and 229 females imbecile (*böldsinnig*), 307 males and 270 female cretins.² There was thus :—

1 insane	.	.	in every 666 inhabitants.	
1 imbecile	.	.	„ 1675	„
1 cretin	.	.	„ 1352	„
1 of deranged mind	.	.	„ 352	„

SWITZERLAND.

In 1873 there were in the canton of Berne 1512 idiots and cretins, and 1292 lunatics, in all 2804. This makes as many as one person of deranged mind to every 180 inhabitants. In the canton of Aargau there is 1 to every 154 inhabitants. In Zurich 1 to every 192. This is a much higher proportion of the insane than in France, England, or Germany, where the average is said to be 1 insane to every 310-350 people. But a census of this kind is much better taken in a small republican canton than in great countries with centralised governments.

In the year 1846 there had been a census of insane people in Berne; and the number of lunatics and idiots or fatuous people (*Wahnsinnige und Blödsinnige*), was 3082, being a diminution of 278 for 1873. It is very gratifying to hear of a diminution of the insane anywhere during the last twenty-six years, but this may be solely in the number of cretins.

Medical writers have stated cretinism to be decreasing in many places, and it is expressly said in Dr. Fetcher's

¹ Correspondenz—*Blatt für Psychiatrie*, Juni, 1873.

² *Psychiatrisches Centralblatt*, 15th November 1875. Under *Blödsinn*, imbecility or fatuity, both the congenital and acquired forms are included.

report,¹ that this is believed to be the case in the canton of Berne, as well as in the rest of Switzerland. Out of the 1512 idiots and cretins, there were two more females than males. Two only of the idiots had been married, one of whom had the misfortune to be a widower, the other was separated from his wife. All the others, the report assures us, are single (sind ledig).

SWEDEN AND NORWAY.

In 1870 the population of Sweden² was 4,168,525, the number of the insane 8990, of whom 1632 are returned as having been insane from childhood. Almost the whole of this class must be idiots, madness in children being rare. Idiocy thus stands to other forms of mental derangement at 18·15 per cent. The number of the blind is given, as males 1546, females 1813, = 3359; of the deaf and dumb, as males 2379, females 1887, = 4266.

In Norway insanity is commoner, or the statistics are more correctly taken than in most other countries.

A large proportion of those returned as lunatics are idiots, for we may fairly assume that almost all those included under the head of born insane, or insane from childhood, belong to this class.

In 1865, out of 10,000 persons,

30·53	were found to be insane in Norway.
21·56 (1870)	„ „ Sweden.
21·76 (1870)	„ „ Denmark.
15·90 (1867)	„ „ Prussia.
23·87 (1866)	„ „ France.
23·49 (1871)	„ „ Scotland.
24·77 (1871)	„ „ England.

¹ See *Allgemeine Zeitschrift für Psychiatric*, xxx. Band. 1 Heft. Berlin, 1873, pp. 128-129.

² Befolknings-statistik Ny följd xii. 3. Statistiska, Central Byråns. *Undersökninga Berättelser för år 1870.*

23·05 (1867)	were found to be insane in	Saxony.
33·10 (1870)	" " "	Ireland.
16·06 (1870)	" " "	United States.
14·01 (1858)	" " "	Belgium.
29·09 (1870)	" " "	Switzerland.

In the census of 1845 there were, out of an urban population of 161,875 souls, 249 cases of acquired insanity, and 76 idiots. Thus there was—

- 1 in 498 affected in mind.
- 1 in 589 had acquired insanity.
- 1 in 2130 was an idiot.

Out of a rural population of 1,166,596 there were 1978 with acquired insanity, and 1987 idiots. There was thus—

- 1 in 498 affected in mind.
- 1 in 650 with acquired insanity.
- 1 in 2130 was an idiot.

In the census of 1855, out of an urban population of 197,815, there were 347 cases of acquired insanity and 123 idiots. Thus there was—

- 1 in 421 affected in mind.
- 1 in 570 with acquired insanity.
- 1 in 1608 was an idiot.

Out of a rural population of 1,292,232 there were 2345 with acquired insanity and 2256 idiots. Thus there was—

- 1 in 281 affected in mind.
- 1 in 551 had acquired insanity.
- 1 in 573 was an idiot.

The general population had increased in the towns during the ten years from 1845 to 1855 at the rate of 22 per cent; idiots at the rate of 62 per cent, and lunatics (acquired insanity) at the rate of 39 per cent.

In the country the increase of the general population was

10·76 per cent, and the increase in the number of idiots was 13·5, while the increase in acquired insanity was 18·5.

From the census of 1865 it appears that the number of insane from childhood (which must be mainly idiots) was 2039; in the country districts 1926, and in the towns 113. The number of cases of acquired insanity was 3156; in the country 2626, in the towns 530. The number of the deaf and dumb was 1569; in the country 1301, in the towns 268. The blind were 2320; in the country 2069, in towns 251. The total population of Norway in 1865 was 1,701,756; in the country 1,435,464, in the towns 266,292.

Thus, in the country—

1 in 315 was affected in mind.

1 in 546 had acquired insanity.

1 in 745 was an idiot.

And in the towns—

1 in 414 was affected in mind.

1 in 502 had acquired insanity.

1 in 2356 was an idiot.

The increase of the country population in Norway, from 1855 to 1865, was at the rate of 11·84 per cent; that of acquired insanity was 11·55, but there was a decrease in idiocy of 14·63 per cent. The town population had increased at the rate of 34·56, and insanity in the towns at the rate of 52·79, but idiocy had decreased in the towns at the rate of 8·95 per cent.

Assuming these statistics to give something like the actual numbers, it is worthy of inquiry why, in the ten years from 1855 to 1865, there should have been an increase in the number of the insane, and a decrease in the number of idiots in Norway.

DENMARK.

According to Ludvig Dahl there were, in 1845, in Den-

mark and the Faroe Islands 2446 idiots and 1821 lunatics. The population of the kingdom at that date was 1,392,000 inhabitants.

In Iceland in 1845 the number of the insane was given as one in every 385, and of these 71 per cent were idiots.

UNITED STATES.

In the United States the number of idiots in 1870 was 24,395 of these 22,766 were born in the United States.

Amongst the white population, which amounted to 33,592,245, the number of idiots was 11,588 males and 8099 females. Amongst the black population, amounting to 4,886,387, the number of idiots was 1631 males and 1110 females. There were 270 male and 154 female idiots amongst the Mulattoes, and 5 male and 5 female idiots amongst the Indians. The number of the insane was 36,836. The number of the deaf and dumb 16,205 amongst the whites, 7436 males and 6139 females. Amongst the blacks there were 612 males deaf and dumb, and 493 females.

None of those specially acquainted with the subject of idiocy in America have much faith in the result of the general census of idiots in the United States. The following is one of many instances of the insufficient nature of the returns. In the census of 1860 the proportion of idiots for Illinois was stated at 518 or 1 in 2911. But the State Board of public charities, feeling sure that this was far short of the true number, made a special inquiry, asking for returns from all the practitioners in medicine. Although these returns were not compulsory, they obtained evidence to show that the actual number of idiots in Illinois was 2900 or 1 in 867 of the entire population, which is a larger proportion than that of the insane.

CHAPTER III.

CAUSES OF IDIOCY.

HEREDITY.

THERE can be no doubt of the great part played by heredity in the genesis of idiocy. Idiots frequently are born in families in which there is a decided neurotic tendency, as manifested by the appearance of insanity, imbecility, or epilepsy, amongst the members. This is very well illustrated in the genealogical trees published by Ludvig Dahl, in his work on insanity in Norway. It would appear, if these tables are to be relied on, that a single pair, unaffected with any neurosis, may give birth to children also healthy, and yet their children, grandchildren, and great-grandchildren may be affected with insanity, idiocy, epilepsy, or deafness, while other members of the same family stock are apparently healthy and intelligent, though the ancestral taint may appear in their descendants. Why some members of the family should be attacked and others spared, is often as impossible to say as why one in a family should become a great poet or a great mathematician, while his brothers and sisters do not rise above mediocrity.

The only common cause which appears in the genealogies collected by Dahl, given at the end of the volume, is that they are scattered branches of a common ancestor. It has been asserted that all hereditary diseases are in their descent interchangeable with one another, and there are some observed facts which give an air of probability to such a view, but

some hereditary diseases apparently have no greater relation to one another than that they are derangements of nutrition or of healthy action. We do not think, for example, that there is much danger of gout appearing in a descendant in the form of idiocy, or the child of an imbecile inheriting the gouty diathesis, or the child of a consumptive parent becoming a leper. Most of those who have paid much attention to nervous diseases are agreed that there is what is called the neurotic diathesis. There are certain nervous diseases which often occur in different individuals of the same families, while other families are exempt, and two or more of these diseases are apt to occur at successive times in the same individual of the family. The children of epileptics are frequently insane, or idiotic, or hysterical, and the descendants of an insane person are often epileptic, or idiotic, or insane, or their epilepsy passes into insanity, or epilepsy supervenes upon the idiocy. Deaf dumbness, chorea, locomotor ataxia, hysteria, and other disorders of the nervous system, now and then occur in the descendants, apparently as the result of an inherent neurotic tendency in the family stock.

Naturally imbeciles are not often married; many male idiots are agamous, and many female idiots are undoubtedly sterile; but unhappily there are too many instances on record where imbecile or idiotic women have had children.

Haller, in his *Elementa Physiologica*, says that he knew of two noble women who got husbands on account of their fortunes, although they were almost idiots, and that their mental defect has spread for a century through several families, so that some of their descendants are idiots in the fourth and even in the fifth generation.

The commissioners appointed to inquire into the state of lunatics in Scotland,¹ ascertained that the number of idiotic

¹ Scottish Lunacy Commission Report, Edinburgh, 1857, pp. 37-185, 186.

women who have borne illegitimate children, and whose mental defect is frequently manifested in their offspring, was no less than 126, and the return was not believed to be complete. "Among the paupers in the parish of Kintore there was a fatuous mother with her two fatuous children. In the parish of Latheron, in Caithness, five imbecile females were named as having become mothers." "The largest number of children anywhere returned to one fatuous female was five; the mother being an idiot belonging to the parish of Erskine, in Renfrewshire." These facts seemed to the Royal Commissioners to be of such grave import that they recommended, for the sake of public morality and civil policy, that all fatuous females should be restricted in their liberty, and be gathered together in poor-houses.

Esquirol¹ saw at the Salpêtrière an idiot woman the mother of two daughters and a son, all of them idiots.

Dr. Howe writes²—"There are two or three towns in the State in which there are families of idiots, in which parents and children are all imbecile. In one instance, where a pauper female idiot lived in one town, the town authorities hired an idiot belonging to another town, and not then a pauper, to marry her, and the result has been that the town to which the male idiot belongs has for many years had to support the pair and three idiot children."

Idiocy is of all mental derangements the most frequently propagated by descent. Out of 169 idiots, about whom Mr. Ludvig Dahl³ had information, 84, that is, about 50 per cent, had insane relations, but out of 151 who had become insane, only 58, or 38 per cent, had relations affected in mind. 18 of those with insanity, and 21 idiots, that is,

¹ *Heredity*, from the French of Th. Ribot. London, 1875, p. 130.

² *On the Causes of Idiocy*. Edinburgh, 1858, p. 78.

³ *Bidrag til Kundskab om de Sindssyge i Norge af Ludvig Dahl Reserve-læge ved Gaustad Sindssygeasyl*. Christiania, 1859, p. 78.

12 per cent, had parents affected in mind. Of those who had acquired insanity 1 had both parents affected in mind, 5 had the fathers, 8 the mothers, 4 one or more grandparents. Of the idiots, 2 had both parents affected in mind, 6 the fathers, 4 the mothers, 4 1 or more of the grandparents, 5 had the great-grandmother. Singular that there should be more great-grandmothers than mothers transmitting idiocy to their descendants.

The Commissioners on Idiocy appointed by the legislature of Connecticut during their investigations in that state¹ put the question, Have there been any cases of insanity, idiocy, epilepsy, blindness, deafness, or any infirmity of body or mind in the parents or near relatives of the idiot?

The question was answered in 164 cases; and affirmatively in 70 of these cases. There was idiocy in the parents in 10 instances, and in the relatives in 6; insanity in the parents in 6, in the relatives 8; epilepsy in the parents or relatives in 8; blindness in 2; melancholy in the father in one instance. There was dementia from insanity in 13 of the relatives, and one or other of the infirmities mentioned, but not specified, in 11 cases. In the canton of Berne a hereditary neurotic tendency was made out in 55 per cent of the idiots taken by the census of 1873.

Dr. J. Langdon Down has made inquiries into the causes of idiocy in 2000 cases,² and found that in 45 per cent there were well-marked neuroses in the families of one or both parents. If the neurosis were marked on the mother's side the first children were the most affected. If on the father's side he found that it was the later born children who were affected.

¹ See the Report of the Commissioners on Idiocy to the General Assembly of Connecticut. New-Haven, 1856, p. 35.

² See a report of his paper on some of the Causes of Idiocy and Imbecility in the *British Medical Journal*, October 11, 1873.

Consanguine Marriages.

There is a difference of opinion as to the effect of consanguine marriages in producing idiocy. Some distinguished physicians have held that a marriage between near relations, even when both are healthy, and of a healthy stock, is, in some unexplained way, liable to become the cause of hereditary disease in the descendants. Thus Trousseau, though he admitted that it is rare to see a deaf child born from the marriage of two deaf mutes, nevertheless, founding on the inquiries of Boudin, held that the mere consanguinity of healthy parents is a frequent cause of deafness in the children. Others again assert that, though the marriage of blood relations may intensify hereditary tendency, it does not create it in a healthy pair. Thus the influence of a consanguine marriage is simply the influence of a double heredity. The proper way to examine the question clearly, is to find what is the proportion of marriages of blood relations in a given population, and then to inquire if there be in the issue of such marriages, a larger percentage of insane, epileptic, deaf, dumb, idiotic, scrofulous, or otherwise unhealthy children. We find, however, that some of those who maintain that consanguine marriages carry with them an evil tendency, have reached their conclusion by a different and a very fallacious process of reasoning. They collect instances of cousins who have married, and have had unhealthy children, as if this never happened to any one else. What is the value of statements like the following, taken from a book by a learned physician? "Dr. Boinet knew five idiots in five different families sprung from this sort of marriage. A celebrated lawyer, married to a cousin, lost three children from hydrocephalus. A manufacturer at Lyons, similarly married, had fourteen children; eight died of convulsions at an early age; only one survived; the remainder died

of scrofulous affections. In my own circle of acquaintance I know several families where there is an idiot child, or where many of the members have the most strongly marked nervous peculiarities, to which the parents and ancestry were strangers, and for which there seemed to be no plausible reason, except their parents were cousins, and that the families had been in the habit of intermarrying." But I could give many instances of one or more idiots appearing in a family in which there had neither been close marriages nor hereditary predisposition, nor any plausible reason whatever, that could be found.

In like manner, the observations of Trousseau,¹ are rather illustrations than proofs of his belief in the noxious character of close marriages. "Among other examples," he says, "I used to attend a Neapolitan family. The uncle had married his niece. Before this there had been no hereditary disease in the family; but out of four children, the eldest daughter is very eccentric, the second son is epileptic, the third child is very intelligent; the fourth is idiotic and epileptic. One of the heads of a family, with whom I am in terms of friendship, has also married his niece. From this union there have come four children, one of whom was seized at his birth with severe eclamptic fits; another son is idiotic and epileptic."

"Now that I make careful inquiries amongst my patients about consanguinity when I have to do with deaf mutes, idiots, and epileptics, I cannot express how much this influence seems to me to operate in the etiology of those affected." Dr. Howe, who is always cited as an authority to prove the noxious influences of the intermarriage of relations, never seems to have taken the trouble to ascertain what was the actual ratio of marriage between near relations in Massa-

¹ Trousseau states his views with his usual clearness and ability in his *Clinique Médicale de l'Hôtel Dieu le Paris*. Paris, 1868, vol. ii. pp. 129-137.

chusetts. He was inclined to believe that it was only 1 to 1000 to the marriages between persons not relations. This is stating it much too low. Boudin, in France, made it out to be 2 per cent. and Mr. Darwin junior never found it lower than $1\frac{1}{2}$ in any part of England.

Dr. Howe's striking statement is given in his own words:¹—"The statistics of the 17 families, the heads of which, being blood relatives, intermarried, tells a fearful tale.

"Most of the parents were intemperate or scrofulous; some were both the one and the other; of course there were other causes to increase chances of infirm offspring besides that of the intermarriage. There were born unto them 95 children, of whom 44 were idiotic, 12 others were scrofulous and puny, 1 was deaf, and 1 was a dwarf. In some cases all the children were either idiotic or very scrofulous and puny. In one family of 8 children, 5 were idiotic."

It will be noted that heredity is here not the only influence in operation; most of the parents were intemperate or scrofulous, and it is surely strange that some writers who quote Dr. Howe's statistics as something very conclusive, should neglect to reproduce so important a qualification to their force; moreover, as no other observers have recorded so much mischief of consanguine marriages, Dr. Howe's statements must record exceptional coincidences, or else some errors must have been made in registering facts. The proportion of idiots found to be the offspring of consanguine marriages has been found to vary in different places or under different observers. Dr. Howe found it in 20 cases out of 359; Dr. Grabham, in 11 cases out of 543, that is, 1 in every 49. Dr. C. T. Wilbur in Illinois found it in two cases out of 675. The Commissioners on Idiocy in Connecticut found it in 20 cases out of 160 where answers were given to

¹ On the *Causes of Idiocy*. Edinburgh, 1858, p. 35.

their questions. Of these idiots, 12 were children of first cousins, three of second cousins, one of third cousins, and four of more distant relatives.

Dr. Langdon Down¹ found that out of 753 male idiots, 33 were the offspring of first cousins, 3 cases of second cousins, and 4 of third cousins, in all, 40 cases out of 753, or rather more than 5 per cent. Of the 295 females, 13 were the children of first cousins; 3 of second cousins; and 4 of third cousins; in all, 20 among 295, or little less than 7 per cent. His researches show that in England at least every fourteenth idiot only is the child of cousins.

I myself found out of 204 families in which there were idiot children, 7 marriages of first cousins and 2 of second cousins. In 6 of the families where first cousins married there were 42 children; in one the number of children was not given. In one of these families there were 4 idiotic and weak-minded children; in two families there were two imbeciles each; in one I suspect other members were at least weak-minded, and in three there was only one imbecile child.

To the second cousins there were 17 children in the two families; in one of them there were 2 boys imbecile. Thus, five out of nine pairs had more than one child idiotic or imbecile. Amid so many conflicting statements, it is some relief to know that Huth and Darwin, the two latest English writers who have examined the question, have both arrived at the same conclusion, which Bertillon and Auguste Voisin also support on the other side of the channel.

In Mr. Alfred Huth's book on the *Marriage of Near Kin*, will be found a criticism of the arguments and methods of inquiry of Boudin, Devay, Bemis, and other opponents of close marriages. Mr. Huth himself holds, "that the statistics upon

¹ See paper on "Marriages of Consanguinity in relation to Degeneracy of Race," in the *Clinical Lectures and Reports of the London Hospital*, vol. iii., 1866, p. 224.

which so much reliance has been placed as a proof of the harmfulness of consanguineous marriages are, when not absolutely false, miserably misleading and defective."

Mr. George H. Darwin, who has published the results of some difficult and painstaking inquiries into the question, thus states his matured views :¹—

"To sum up the results of the whole investigation : It seems probable that in England, among the aristocracy and gentry, about 4 per cent of all marriages are between first cousins ; in the country and smaller towns between 2 and 3 per cent ; and in London perhaps as few as $1\frac{1}{2}$ per cent. Probably 3 per cent is a superior limit for the whole population. Turning to lunatic and idiot asylums, probably between 3 and 4 per cent of the patients are offspring of first cousins. Taking into account the uncertainty of my methods of finding the proportion of such marriages in the general population, the percentage of such offspring in asylums is not greater than that in the general population to such an extent as to enable one to say, positively, that the marriage of first cousins has any effect in the production of insanity or idiocy, although it might still be shown, by more accurate methods of research, that it is so. With respect to deaf-mutes, the proportion of offspring of first-cousin marriages is precisely the same as the proportion of such marriages for the large towns and the country, and therefore there is no evidence whatever of any ill results accruing to the offspring in consequence of the cousinship of their parents."

If we assume that there may be a strong resemblance or parallelism in the whole constitution, as well as in the structure and growth of the different organs in two near relations, it is easier to understand how, when there is any inherent weakness in one organ, that a marriage with a blood relation should be dangerous for the offspring, just as two parallel rods

¹ See his paper in the *Journal of the Statistical Society* for June 1875.

are more liable to break when their two weakest parts are opposite one another.

It has been already noticed that when cousins had idiot children they have had in four marriages out of five more than one child affected.¹ As M. Sanson has put it, "La consanguinité élève l'hérédité à sa plus haute puissance."

When we say that idiocy is hereditary in the family of those of a neurotic constitution, we rather add a new mystery to the wonderful phenomena of life than give any explanation of what we wish to account for. Why should a child inherit a disease from which its parents are free? Why should he inherit from his ancestors, generations removed, an affection from which their own children had escaped? In most cases the hereditary tendency alone is insufficient to be the cause of idiocy without the assistance of other influences favouring this unhappy sequence. Were this not the case, all the children in such families would be idiotic, which rarely happens. These accessory causes act with unusual efficacy upon individuals of a neurotic tendency, and probably determine the cast of the resultant disease, whether it is to be insanity, epilepsy, or deaf-dumbness, or some other nervous disorder. In the absence of hereditary predisposition, such accessory causes may, under certain unknown conditions, become the originating causes of idiocy. It would appear that whatever weakens the organism of the parent may be a cause of idiocy in the offspring, and that such causes act with especial force during the pregnancy of the mother.

Scrofula.

Perhaps two-thirds, or even more, of all idiots are of the scrofulous constitution. No physician of any experience

¹ Dr. Langdon Down gives twenty cases of marriages of blood relations where some of the offspring were idiots. In two of these families there were two imbeciles or idiots, and in other two there were in each three so affected. Thus Dr. Down's statistics somewhat weaken the force of mine.

could fail to notice this on going amongst a number of idiots. The greater part of the work which falls upon the doctor of a training school for imbeciles, consists in the treatment of the different local and general manifestations of the scrofulous diathesis, such as enlarged or suppurating glands, skin eruptions, ophthalmia, otorrhœa, strumous ulcers, and abscesses, and fully two-thirds of all idiots die of phthisis. It may be asked is idiocy itself not another though a rarer manifestation of this diathesis? Is the mal-nutrition of the brain the result of scrofula, or is the scrofula the parallel result of a common cause which has also a special action in impeding the true growth and nutrition of the brain somewhat in the same manner as a wound in the head might render a man fatuous, and at the same time, by depressing his constitution, throw him into a consumption?

We know that cretins are often affected with scrofula, yet cretinism is believed to be due to a special cause quite distinct from that of scrofula; or, thirdly, it might be held that the defective growth and defective nutrition of the brain constituting idiocy may have an injurious effect upon the healthy growth of the whole body, and thus induce scrofula. Without dwelling on such speculations, it may be said that the scrofulous diathesis seems to favour, or at least to accompany, the production of idiocy. There is a larger proportion of scrofulous or weakly parents who have idiotic children, than of healthy parents who have idiotic children; but we cannot at present establish any closer connection between scrofula, alcoholism, and other manifestations of a weak and depraved constitution on the one hand, and idiocy on the other, or explain how these unhealthy states should in some cases check the growth or nutrition of the nervous centres, instead of affecting the growth or nutrition of other parts of the body, or of all the organs alike.¹

¹ Dr. T. S. Clouston has in some papers, which have deservedly attracted

Scrofula is certainly very common with idiots ; but then again we know that many scrofulous children descended from scrofulous parents are of average intelligence, and that some have unusual mental activity. In cretinism we have a right to assume the existence of a specific cause which is rife in certain localities, principally shut-in valleys. This cause, whether existing in the air or water, or in both of them, is only known to us through its effects, but its action is much increased by the operation of whatever tends to weaken the constitution of the child in the district where cretinism is endemic.

Thus, children brought up in confined, dark, and dirty houses, ill-fed and ill-cared for, are more liable to become cretins than children who are brought up in the same place, but under more happy surroundings. Still we see children brought up under every condition favourable to health sometimes falling a prey to cretinism in places where the malady is rife.

Most influences which lower the general health in the parents have been assigned as causes of idiocy, but, contrary to what might be expected, it does not seem to be a frequent consequence of hereditary syphilis, though I have met with a few apparent instances of the kind. Dahl has found idiocy in some families associated with that form of leprosy which is met with in Norway. Idiots had brothers or sisters who were lepers, or were themselves leprosy, but this connection of the two diseases seems to be accidental.

Drunkenness in Parents.

There is great difference of opinion about the influence of drunken habits in the parents in the causation of idiocy. Dr. great attention, shown the great frequency of tuberculosis with the insane. See especially the connection between tuberculosis and insanity in *Journal of Mental Science*, April 1873, and *Illustrations of Phthisical Insanity*.—*Ib.* July 1864.

Langdon Down¹ lays more stress upon an intoxicated state of the father, especially during the time of conception, than one would suppose warranted by the possibility of the evidence.

Ludvig Dahl concludes that to the abuse of brandy, especially in the fathers, but also in the mothers during pregnancy, may be assigned an important, perhaps the most important, influence in the production of the large number of idiots in Norway.

The Connecticut Commissioners found the parents given to intemperance in drink in 76 cases out of 235; in 30 of these instances both parents were intemperate; in 46 one of them was so.

Dr. C. T. Wilbur found that out of 365 cases in the State Illinois, in whom the supposed cause of the idiocy was recorded, only 8 cases were put down to the abuse of drink in the parents. In a later inquiry, Dr. C. T. Wilbur found that out of 675 idiots, in only 5 cases was the intemperance of the father ascribed as the probable cause.

Dr. Grabham, out of 800 cases, assigned intemperance in drink as the probable cause in 6 idiots, and in 6 of these there was a hereditary tendency to insanity. Dr. Shuttleworth, the Superintendent of the Royal Albert Asylum at Lancaster, who made a critical examination of 160 cases, could not find that there was any evidence of notable inebriety on the part of the parents in more than 6 cases, and in only 2 instances was he inclined to regard the idiocy as the direct consequence of the inebriety.

Dr. Shuttleworth, speaking from a fair knowledge of the parents of idiots, thinks that it would be a grievous scandal

¹ This opinion is not new. Toussinel, in the *Monde des Oiseaux*, p. 106, writes:—"On sait que les enfants se ressentent généralement de l'influence passionnelle qui a présidé à leur conception. La plupart des idiots sont des enfants procréés dans l'ivresse bacchique," quoted in *A Physician's Problems*, by Charles Elam, M.D. London, 1869, p. 150.

to say that an unusually large proportion of them were intemperate people. I am inclined to think that a strict observer, speaking from a fair knowledge of drunkards, would hesitate to say that any considerable number of their children were idiots. The children of drunken parents in many cases have an unhealthy nervous system; they are weak, unsteady, and excitable, and often have a diseased craving for spirituous liquors, but, in my opinion, idiocy is not the ordinary legacy which drunkards leave to their children.

Drunkenness generally brings other debasing influences along with it, such as poverty, disgrace, and disappointment, and thus a drunken father may lower the whole tone of health of his family. That alcoholic intoxication has a lowering effect upon the constitution which may lay the foundation of idiocy or neurotic diseases, bringing idiocy in their train, is what probably none will deny.

Some writers have assumed that idiocy is the result of the degeneracy of a race. After several generations of dissipated or weakly and scrofulous persons, the line ends in sterility, imbecility, and idiocy.

Morel¹ gives a notable instance of this process of extinction in a family:—In the first generation there was immorality, depravation, alcoholic excesses, and brutalisation. In the second generation, hereditary drunkenness, attacks of mania, and general paralysis. In the third generation there was sobriety, hypochondriac tendencies, melancholia, delusions that he was persecuted by others, and homicidal tendencies. In the fourth generation the intelligence was feeble. There was an attack of mania at sixteen years of age, stupidity, transition to idiocy, with probable extinction of the race.

Dr. Howe is eloquent about the laws of nature which act with unerring certainty, and holds that "it may be assumed

¹ *Traité des Dégénérescences Physiques intellectuelles et morales de l'espèce humaine.* Paris, 1857, p. 125.

as certain that in all cases where children are born deformed, or blind, or deaf, or idiotic, or so imperfectly and feebly organised that they cannot come to maturity under ordinary circumstances, or have the seeds of early decay, or have original impetuosity of passion that amounts to moral insanity, in all such cases, the fault lies with the progenitors." No doubt there must be something wrong in the antecedents, but one might fairly expect, from a good deal of writing of this kind, that the parents of idiot children must be, to a very marked degree, puny, degenerate, weak, scrofulous, drunken, and stupid people, who live in daily defiance of the commandments in Combe's *Constitution of Man*; nevertheless, a little actual intercourse with them would disabuse any one of such an opinion. In some families, indeed, there is much disease, especially of a scrofulous or tubercular kind, and all or most of the members are feeble of mind and body, and the frequent connection of idiocy and hereditary neurosis is indisputable.

Idiots Born into Healthy Families.

On the other hand, it often happens that idiots are born into a family where the father and mother, and the sisters and brothers, are apparently quite healthy, and live in obedience to the laws of health. Many of the parents of idiots are people who are rising, instead of sinking, in the world, and not even where idiocy or insanity has again and again appeared in the different branches of a family can it be fairly said that those members who have escaped the ancestral peril are exceptionally dull, stupid, or diseased. The statistics of the Larbert Institution certainly do not show that idiocy is a proof of the dying out and degeneracy of a family, for it was found that the number of children in families where idiots have appeared was greater than the average. Out of 204 families the average number of the children was 6.27,

and although those who were idiots must be regarded as dead branches, many of the other brothers and sisters were vigorous and intelligent. The present superintendent of Earlswood once assured me that he had found by actual inquiry that the number of children in families where idiocy was present to be rather more than less than the average. In fact, idiots seem oftener born into large families than into small ones, and are rarely only children. I have often seen idiots brought by their parents, strong and healthy people, from the lowlands of Aberdeenshire, or the glens of the West Highlands, or the pastoral hills of the border, where, most assuredly, the race is not degenerating. They almost always deny any hereditary insanity or other disease in their family, but, in truth, Scotland is not a good country for getting answers to questions of this nature from the proud, reserved, and cautious character of the people.

Some one has written, and more have copied it, that if certain causes of health were universally observed, idiocy and other allied diseases would totally disappear in a few generations, and there is little doubt that their frequency would be greatly diminished. In a healthy race, living a pure and healthy life, I imagine that idiots will be rare, and that the proportion of those who become so from accidental causes will be greater; but in a society struggling under unhealthy and disquieting influences, idiotic children will be more numerous, especially if these influences act upon the constitution of the mother. But it cannot be overlooked that there are many instances of idiocy, the causes of which cannot be explained, and there are other known causes which, in the present state of society, cannot be fairly avoided. After all, nobody makes the mere maintenance of the highest state of bodily vigour either in himself or his offspring the prime end of existence. It is very likely that, if you could get a thousand rich men into a lecture-room, men who could live where they pleased and do what they

liked, you might convince every one of them that their probability of life would be fifteen years greater if they went and lived in one of the Hebrides or some dull spot in the Highlands, that they and their wives would be healthier, and that they would have less chance of losing any of their children; they might be thoroughly convinced of all this, and yet possibly not one of them would go and settle in these salubrious localities. Even medical men, whose knowledge of physiological laws has been tested by examination, often set the example of utterly defying them. I know of an instance of a man who married a woman who had been several times insane, and of another who married an imbecile girl. These are the only two instances of the kind amongst the middle classes of our own country which have come under my observation, and both these men belonged to the medical profession.

Influence of Gynagogues.

Dr. Seguin, in a lecture delivered before the New York Medical Association, remarks that idiocy is increasing in the State of New York, and finds the cause of it in the unsatisfactory social conditions which some people wish to introduce into this country. "We overburden women," says Dr. Seguin, "they overburden themselves, and choose or accept burdens unfit for them." "As soon," he says in another place, "as women assumed the anxieties pertaining to both sexes, they gave birth to children whose like had hardly been met with thirty years ago—insane before their brain could have been deranged by their own exertions—insane, likely, by a reflex action of the nervous exhaustion of their mother."

The antagonism created by social agitators of the gynagogue class seems to Dr. Seguin to have already borne evil fruit. "Children gotten under such moral and other pressures cannot truly be said to be born from the union, but rather

from the disunion of their parents conceived in antagonism ; they can only be excessive in their tendencies, or monsters in their organisation."

The unquiet speculating life led by many in New York, where riches and extravagance, disappointment and failure, swiftly follow one another, has effects which Dr. Seguin points out in a striking instance :—"I have attended a mother of a remarkably fine family of four children, whose fifth was affected in this wise. During that pregnancy her husband was deeply involved in speculations ; he would say nothing then about his chances, but she knew daily, by the way he ate, how much he had lost. One day she saw him swallowing his dinner without masticating at all. She fainted away, the child hardly moved after, and was born a cripple and an idiot."

Fright to the Mother.

Fright to the mother, or other painful emotion during pregnancy, is very often assigned as the cause of idiocy. There are sometimes other causes, such as hereditary tendency in the family, or drunkenness in one or both parents ; but it by no means follows that because we can indicate a predisposing cause that the shock to the mother could not have been the exciting one. In many cases, however, the fright is the only apparent cause. I do not think we are entitled to reject such explanations merely because we cannot show how the shock to the nervous system of the mother can arrest the development of the nervous system of the child. Stories, illustrating the influence of mental impressions of the mother upon the child she is bearing, are very numerous, and some of them very striking. In all ages women have believed that fright or extreme distress are dangerous to their offspring,¹

¹ Saegert tells us that fright to the mother is sometimes assigned as the cause of deafness in the child. "Einige Fälle sind mir bekannt geworden, in

and I see no reason for denying that such influences during pregnancy may, in some cases, produce idiocy in the child of healthy parents who would otherwise have been born free from mental deficiency. One woman lost her husband at sea ; another got a fright from a horse running away with a coach in which she was ; another was terrified by the riotous behaviour of drunken sailors in a prison, her husband being the jailor ; another woman, whose husband was the governor of a jail, stated that she was in continual fear during her first pregnancy ; another woman got a terrible fright by seeing a man attack her husband with a cleaver. Mr. Paget gave a remarkable case where a girl bore a great resemblance to a monkey, and had a crop of brown harsh lank hair on the back and arms. The mother had, in the early period of pregnancy, been terrified by a monkey jumping on her back from a street organ. Another woman said she saw an imbecile girl exactly like the one born to her ; another attributed the idiocy of the second child to her fears in brooding over the idiocy of the first. Baron Percy, a French military surgeon, observed that out of ninety-two children whose mothers had been exposed to the terrors of a tremendous cannonade at the siege of Landau in 1793, sixteen died at the instant of birth ; thirty-three languished from eight to ten months and then died ; eight became idiotic, and died before the age of five years ; and two came into the world with numerous fractures of the bones of the limbs.¹

welchen die Mutter die Ursache der Taubheit des Kindes von einem Schreck kurz nach der Conception herleitete, und ein Fall, in welchem die Mutter in momento conceptionis die Idee gehabt haben will, dass ihr Nervenkranker Sohn taub bleiben werde. See das Taubstummen-Bildungswesen in Preussen von C. W. Saegert General-Inspektor des Taubstummenwesens Separat-Abdruck aus dem Taubstummen freund von 1874 und 1875.

¹ For this and other instances, see *The Power of the Soul over the Body*, by George Moore, M.D., London, 1868, p. 283.

Causes of Deafness.

Saegert¹ remarks that congenital deafness and idiocy rarely come together; yet there is no doubt that the one affection can often be traced to the same causes as the other. His observations upon the etiology of deafness would almost do for an account of the causes of idiocy. "I know," he writes, "a family in which there were seven children, four boys and three girls. The boys were all deaf mutes, the girls sound. I know also a family in which exactly the reverse occurred. There are other families in which all the children, without exception, boys as well as girls, following one another, were deaf. In one family five children were deaf and the sixth was born and grew up without any trace of disease of the organ of hearing. The assertions of uneducated people that their children are deaf from birth are not worthy of trust. I have gone through all the returns of the years 1845 and 1846, using the help of the schoolmasters, and arrived at the conclusion that such people had no exact knowledge about the earliest childhood of the unhappy deaf mutes, which is not surprising, if we remember that the mothers, when they go to the country every morning for field labour, or in the towns to the factories, leave their youngest children to the care of their bigger brothers and sisters."

"The exanthematous diseases of children play an important part in diseases of the organs of hearing. Cold in the feet, in the neck, and belly, especially at the time when these diseases disappear or fall into the chronic state, are very dangerous, and we find many deaf mutes in the swampy marshy districts of Prussia, for example, in the low grounds of the eastern provinces, in the marshy districts of the Oder, the Warthe, the Netze, and the Odra, in the Spreewald, in the Havellande, and the County of Ruppín. Congestion of the

¹ Op. Cit. pp. 16-17.

brain, the so-called cerebral inflammations in the course of diseases of dentition during the first three years of life, are as much the causes of deafness as of idiocy."

"The scrofulous constitution is a common foundation for the diseases which derange the hearing, and was the probable cause in two-thirds of those cases which were put down as deafness from birth." Like idiocy, deafness is more common in some districts than in others.

"In Upper Silesia, the mountainous parts of Westphalia, of the Haardt, Egge, and Lippe, the Weser, and the Osnick, and the district of the Eifel in the Rhine provinces, cretinism and deaf dumbness both prevail together."

"The ground contains limestone, and under it a layer of salt, and the water gives a copious calcareous deposit on boiling. One cannot be sure that this condition of the water is the cause of diseases of the organ of hearing and of cretinism. Nevertheless it is still a question worthy of attention under what parallel conditions these endemic influences produce such effects upon the groundwork of scrofula."

CHAPTER IV.

THE CLASSIFICATION OF IDIOCY.

BESIDES these general causes of idiocy, whose vagueness is not favourable to scientific inquiry, there are more determinate exciting causes ; the child becomes idiotic either through lack of development or nutrition, or through disease or injury befalling the brain, before or after birth. This brings us to the classification of idiocy which I attempted, based upon pathological conditions. Had I found a tolerable classification of the kind already existing I should certainly have made use of it ; but as I knew of none, I found it was necessary to have some arrangement, in order to say clearly what I wanted to say. Such objections as have been made to the classification, had better be considered after the reader has become acquainted with it. In the meantime, it may be well to remark that no classification of diseases was ever attempted which was not liable to numerous objections, and that the only way to overthrow a classification of this kind is not to find faults in it, but to frame a better one. If this be done it will soon be superseded.

There always must be some awkwardness about the classification of insanity. It is regarded as aberration of function of the nervous centres, the result of a number of nervous diseases. The physician who wishes to have a proper knowledge of insanity from a medical point of view must study the pathological conditions of which it is the symptom or the result, and when he has done so it is impossible for him to disconnect one series of observations from the other—the

mental aberration from the accompanying disease of tissue or pathological symptoms. Insanity is, therefore, an irregular segment of a circle, of the totality of which it forms a part. It can neither be viewed alone, nor can it, from its great importance, be regarded as merely a symptom of various nervous diseases, especially when most of these diseases may run their course without its manifestation. Thus we have epileptic or paralytic insanity, although we may have epilepsy or paralysis without any lasting mental disorder.

At any rate it would be very inconvenient for us to want a classification of insanity founded upon pathology and etiology. Nor is it a fair objection to such classifications that they are in the present state of pathology imperfect, and in part at least, likely to be swept away by the advance of pathology ; for no one acquainted with the history of medicine will affirm that imperfect nosologies have been of no use. On the other hand, it would be very inconvenient to dispense entirely with psychical divisions of insanity. The insane are deprived of their liberty and collected in asylums on account of their psychical deficiencies and aberrations, and it is evident that the character of such deficiencies will always be important, both to society at large and to those who have the charge of them. If our classifications, psychical and pathological, approached completeness, they would bear an understood relation to one another. If we were to consider the deficiencies of an optical instrument like a microscope, we could describe them in two ways. We might say that objects were seen through it in colours which did not properly belong to them, or that their shapes were ill defined, or that they were seen dimly, with too little light. In this way we indicate the faults of the instrument by describing their effects upon the eye of the observer. On the other hand, we could describe these faults directly ; we could explain how, owing to imperfection in the shaping of the glasses, the lenses failed to bring

all the rays of light into one focus, *i.e.*, spherical aberration ; or that, owing to the nature of the glasses, unequal refraction of the rays took place, *i.e.*, chromatic aberration ; or, owing to want of due transparency, or to the glasses being soiled, enough of light did not pass through. The one class of explanations would represent the psychical classification, the mind standing in the same relation to the organism as the eye does to the microscope. The other would represent the pathological classification. As our knowledge of the physiology of the brain is something very far behind our knowledge of the laws of light and optics, we are not nearly so successful in bringing the psychical and physiological systems into accord.

Idiocy and imbecility have usually been regarded by writers on insanity as pathological generalisations incapable of further subdivision. It is singular that those who object so strenuously to merely psychical divisions of insanity, such as mania or melancholia, and have formed a classification founded upon pathology or etiology, should not have noticed that idiocy or imbecility are purely mental classifications ; in short, that they are other names for psychical deficiency commencing in early life. Nevertheless, this mental deficiency comprehends cases quite distinct in their etiology, pathology, and treatment, which, however, unite to produce the deficiency of intellectual, nervous, and muscular power.

As the mental deficiency is the most serious of the symptoms or consequences of the diseased condition, it is of great importance that the degree of mental feebleness should be defined. Hence the necessity of psychical definitions, such as the popular ones of idiot, imbecile, and feeble-minded, indicating three degrees of mental obtuseness, as well as the classification of Esquirol, founded upon the degree in which speech is exercised. Moreover, since it is impossible, from the other symptoms, to arrive at anything like an exact conclusion as

to the extent of the diseased action, the mental faculties still spared are of great value in examining an idiot with a view to prognosis and treatment. At the same time any one who trusted to mental symptoms alone would fall into grievous errors; for example, it would be incorrect to give the same prognosis for an epileptic as for a traumatic idiot, from the degree of intelligence left. In the one case we have an existing disease still likely to cause further mischief; in the other we have a lesion come and gone, whose unfortunate effects may be expected to diminish through time.

In short, all kinds of idiocy have not the same future, nor ought to be treated in the same way. To group them all together is as absurd as to go on measuring the heads of microcephalic and hydrocephalic idiots, and to generalise the results into one useless average.

If we define idiocy as simply a deficiency of the psyche, then a mental qualification is what we must logically aim at. If, on the other hand, we define idiocy to be mental deficiency depending upon mal-nutrition or disease of the nervous centres, occurring either before birth or before the evolution of the mental faculties in childhood, we look at it in a different manner.

We have arrived at some facts in studying idiocy in connection with the diseases which give rise to it. And we need to have them arranged and classified; thus we must have a pathological classification as well as a mental one. The human mind, bounded in its insight, requires to look at the subject in two aspects, and for the same reason that we require to see a solid body on every side, unless it happens to be transparent. In a similar way, we have different classifications for human beings according to the point of view from which we regard them. Take for example Socrates and Cæsar, Confucius and Timur Khan. In respect of their mental powers and pursuits Confucius and Socrates would fall into

the same rank as philosophers, and Cæsar and Timur Khan as rulers or warriors. But then we might classify them with the eye of a zoologist, when Cæsar and Socrates would go together as Aryans, and Confucius and Timur Khan as Mongolians. In a like way, an epileptic idiot might fall under the same mental division as a hydrocephalic one, if we classify him from the degree of intelligence left. Nevertheless, we cannot refuse to take into consideration the modifying influence of the special disease upon the course and prognosis of the idiocy; and, as a general rule, the different divisions of idiocy proposed below, have certain mental characteristics in common, somewhat in the same way as the Mongolians and Aryans seem to have got a prevailing character. Some authors have divided idiocy into congenital and acquired—a distinction which appears to me of little value where the pathological causes are the same. Most of the diseases which produce idiocy may occur before birth as well as after it, and we do not require a double pathological classification, without any sufficient difference either in the nature of the lesion or its results. Coming to the study of idiocy after having gained some experience in medicine, I have from the beginning viewed it from the stand-point of pathology; and my idea of idiocy is compounded of the following classes, which are generalised from individual existing idiots, who resemble one another by having the same or similar diseases, as they resemble the type of idiocy by having mental deficiency along with a corporeal disease.

1. Genetous Idiocy.
2. Microcephalic Idiocy.
3. Eclampsic Idiocy.
4. Epileptic Idiocy.
5. Hydrocephalic Idiocy.
6. Paralytic Idiocy.

7. Cretinism.
8. Traumatic Idiocy.
9. Inflammatory Idiocy.
10. Idiocy by Deprivation.

The only way to prove the worth of this classification is to exhibit the general characteristics of the different groups, and to show in what respect they vary from one another.

CHAPTER V.

GENETOUS IDIOCY.

Nature and Symptoms.

IN my previous essays at classification I used the term congenital idiocy to comprehend all those cases which, shrouded in the obscurity of intra-uterine existence, cannot be traced back to any known specific disease, but good care was taken to explain that other forms of idiocy, such as microcephalic, or paralytic, or hydrocephalic, might also be called congenital, though not in the same sense. In spite of all this, objection was used against the class, which had no force if the explanation given had been held in view. It may be retorted that I gave a new and peculiar definition to an old term, for the phrase congenital or born idiocy has been already used by writers in different senses. "Idiocy," writes M. Parchappe, "depends upon congenital atrophy of the brain; idiotism upon an atrophy following upon a chronic affection." Other French physicians have used the term idiocy to signify a congenital vice, imbecility to denote a disease acquired after birth.

The word genetous idiocy will do for my former class—congenital idiocy, and as it has not been used by the other writers, I may be allowed to affix a special meaning to it. We must still have a class to comprehend cases whose pathology cannot be properly diagnosed till after death. Thus, cases of inflammation of the brain occurring before birth, are, as far as my knowledge reaches, generally not distinguishable from other congenital cases. In process of time, by carefully

studying the symptoms in life and the lesions after death, we may be able to resolve genetous idiocy into some new or old classes.

At present if we cannot classify some of our cases in a more precise way, we at least may save confusion by putting them aside from the other classes, and inviting attention to the unresolved problems which they represent.

As in genetous idiocy the diseased condition, entailing deficient mental manifestation, is complete before birth, the presumption of a hereditary connection is stronger than in other forms. If the family history be known, there are often parents, aunts, or uncles, who have been insane, imbecile, epileptic, or deaf, or have suffered from some other disorder of the nervous system.

Sometimes the genetous idiot is the youngest child of a large family, especially when the parents are advanced in life. Sometimes he is a child prematurely born. Anxiety and fright to the mother during gestation is frequently put down as the original cause. I have seen a case where one of the idiots was a twin, while his sister was of ordinary intelligence. In another instance the twins, brother and sister, were both idiots. In a third an idiot boy was one of three at a birth, the other two dying in infancy. Some account of these children will be given farther on. Jastrowitz has indicated hydramnios as a probable cause of genetous idiocy. In this class constitutional diseases are common, especially scrofula. The strumous taint shows itself in a great variety of ways, by enlarged glands, glandular abscesses, ophthalmia, otorrhœa, or skin eruptions. Fully two-thirds of genetous idiots die of consumption. Syphilis and rickets are also associated with this form of idiocy, but in a meagre proportion of instances if compared with scrofula.

The circulation is often feeble, and the general temperature a degree or two lower than usual, and the limbs, especially

the lower ones, are frequently cold. Such patients are very subject to chilblains. Sensibility is deficient; they allow their shoes to gall their feet without complaining, and thus sores are produced which are very slow of healing. I have seen ulcers, no bigger than a sixpence, remain unhealed for two or three months.

The unpleasant odour exhaled by idiots comes partly from the secretions of the skin,¹ and often from the teeth and gums. No doubt the condition of the fluids is in many cases deficient, and we must look for an explanation of the idiotic state, not only to the structure of the brain, but to the relation of the blood to the brain. In many instances the heart is found to be small and weak in its structure.² The valves are deficient, or there is an open foramen ovale. It is rare that pupils, where the circulation remains torpid, as indicated by feeble pulse, cold feet or hands, or other signs, make much progress in education and training. When the general health becomes stronger, the patient turns brighter, more noticing, and improves under teaching. What has been named spurious hydrocephalus, or hydrocephaloid, which is indicated by drowsiness or stupor without fever, and with depressed fontanelle, is an illustration of deficient function of the brain without organic disease, dependent on poor blood supply. It occurs in ill-fed neglected children, and often attends the close of chronic vomiting. Sometimes it disappears very quickly.

The most common accompaniment of genetous idiocy, is what has been variously called the keel-shaped, or saddle-

¹ Dr. L. Frigerio gives an account of two idiots, who, when they were excited, gave out in the perspiration so strong a smell of musk, that the air through which they moved was quite impregnated with it. No analysis could be taken.—*Zeitschrift für Psychiatrie*, xxxii. 2. Heft: p. 234.

² There is a description of two cases where the heart was small in proportion to the brain, in a contribution by Dr. Hagen, in the *Psychiatrisches Centralblatt*, November 21, 1872. A weak condition or deficient structure of the heart has been several times observed by me in necrosopies of idiots.

shaped, or vaulted palate. It resembles the impression of the keel of a ship ; or it might be compared to the inside of a saddle viewed from below, the pommel being turned backwards, for the arch is sharper behind than in front, and there is occasionally a narrow furrow running along the middle.



Fig. 1.

Idiot with protruding upper alveolar process and vaulted palate.

There are variations in shape, and many degrees from the normal to the abnormal. The palate is narrow, the space between the bicuspid and molars of the opposite side is diminished. In one young woman I find it as small as $1\frac{1}{2}$ centimetre across from the bicuspid, and 2 centimetres between the last molars. The height of the palatal arch is at the same time increased at the expense of the cavity of the nares. In those cases where the narrowness is extreme, the alveolar processes of the upper jaw are advanced, and the protruding teeth, generally more or less decayed, are left uncovered by the upper lip. In most cases of vaulted palate the symmetry of the normal curve of the dental arch is much

impaired. The front teeth are generally irregularly placed and crowded ; the molars, on the contrary, have often intervals between them. Sometimes there is a space between the incisors and the canines ; often these latter teeth are inserted on a different plane ; now and then they protrude from the walls of the alveolar processes above the row of the others. The front teeth are often pitted by the giving way of the enamel at different points. The teeth, which are unusually late in making their appearance, as in rickets, are very apt to decay early, especially in the upper jaw, so that it is rare to see a complete set of twenty-eight. The wisdom teeth do not commonly appear at all. In many cases the teeth commence to decay two or three years after they have come out. A greenish mould appears at the margin of the gums ; they then rapidly become hollow and break in pieces. Very often, before idiots have grown up, only two or three rotten stumps remain. This process may go on with great rapidity, three or four teeth being lost in as many months. It is not generally accompanied with much pain, though the gums become swollen, and purulent matter is found round the carious stumps. In some instances there are fewer teeth in the upper than in the lower jaw. The teeth are frequently ill-formed ; I found cleft palate in about one per cent of idiots examined. Dr. Langdon Down found it in one out of every two hundred cases. Cleft palate is not a hereditary deformity.

Dr. Langdon Down remarks, "It has been a matter of considerable interest to me to ascertain how frequently the syphilitic teeth, so well described by my friend and colleague Mr. Hutchinson, were to be met with among the feeble-minded ; but the result of my inquiry has been to discover very few among them who were in this way indicated to be the subjects of congenital syphilis. Very few have had syphilitic teeth ; but where I did discover them I always had confirmatory evidence of the syphilitic history of the case,

and the condition of the teeth was always associated with the chronic inflammation of the cornea, to which Mr. Hutchinson has called attention. I have, therefore, been led to the conclusion that syphilis is not by any means an important factor in the production of congenital mental disease. The honeycombed teeth are, I am persuaded, perfectly distinct from the syphilitic, and are manifestations of that grave perversion of nutrition which implicates in these cases every tissue in the body."¹

Sometimes the glands of the mouth are enlarged, the tongue corrugated, or the lips striated. The vaulted palate does not occur in all genetous idiots. In some cases the palate is normal and the teeth good, but undoubtedly the deformity is very common. It occurs in individuals who

¹ See an able memoir by Dr. J. Langdon Down in the *Transactions of the Odontological Society of Great Britain*, vol. iv. No. 1, 1871, on the relation of the teeth and mouth to mental development.

Consult also *The Deformities of the Mouth, Congenital and Acquired, with their Mechanical Treatment*, by James Oakley Coles. London: 1870, p. 27.

Dr. T. Claye Shaw took the trouble to write a paper to prove that a highly-arched palate is not a sign of the existence of idiocy and imbecility, and that a palatal investigation cannot afford "a clue to the mental faculties." In the discussion which followed the reading of Dr. Shaw's paper at a meeting of the Medico-Psychological Association, Dr Langdon Down remarked that, "in accidental cases of idiocy, such as were caused by meningitis, or by some casualty of early life, the high-arched narrow palate would not be met with; the observations should rather be confined to cases of congenital idiocy." Dr. T. Claye Shaw's paper illustrates the confusion of mind one must fall into who studies the physical aspects of idiocy, while he persists in regarding it as a class incapable of further subdivision.

The statement, at p. 200, that a high palate is invariably associated with a narrow skull, and the conclusion that rickets and syphilis are the causes of high and imperfect palates in idiots, are quite at variance with what I have observed. Dr. T. Claye Shaw gives three instances of idiots where the variations from the normal measurement of the palate are smallest, yet his third case does not bear out his assertion, for the height of the palate at the first bicuspid is seven lines and the width is eleven lines. Here the width is much less than twice the height. But in the average measurements which he gives of the normal palate, the height at the first bicuspid is seven lines and the width is one inch four lines, *i.e.*, more than twice the height. The idiot's palate is thus proved by his own measurement to be more vaulted than the normal palate.—See *Journal of Mental Science* for July 1876.

show no deficiency of intellect, it is impossible to say in what proportion, but without doubt it is a rare deformity. It is known to dentists as the V-shaped palate. In the discussion which followed Dr. Down's paper before the Odontological Society, Mr. Sercombe, a well-known dentist, said he knew one of the oldest families in the realm in whom every branch of the family had remarkably high V-shaped palates, and at least two members of the family had been in confinement. In this family the chief contraction was between the bicuspid. Mr. G. R. Keeling said that "he had understood Dr. Down to ask for information respecting the gradual degeneration which might have taken place in the successive generations of the parents of imbecile children. He was in a position to afford such information. He knew the grandfather and the mother of an imbecile child (the latter, he had reason to know, had been under the care of Dr. Down) and if the discussion were postponed he should be happy to produce the models of the mouths of the grandfather and the mother, and perhaps of the imbecile child's mouth also. According to Dr. C. B. Coffin¹ this tendency to narrow and vaulted palate, with alterations in the dimensions of the antrum or maxillary sinus and contracted nasal passages, is greatly on the increase, and he views it as a proof of progressive degeneracy of the race. This seems to be rather a hasty conclusion. My own chances of examining the roofs of the mouths of healthy people are very limited. But whenever I have an opportunity I examine the mouths of the brothers and sisters of idiots whom I visit, or who are under my care. Yet I do not remember to have seen a single well-marked case of saddle-shaped palate in any one who was not imbecile. This inclines me to believe that this deformity is very rare with people of ordinary intelligence.

¹ See a notice of his pamphlet on alveolar contraction, in the *Westminster Review* of April 1873.

That those who are affected by it should frequently visit the dentist is no way surprising, for, independently of bad teeth, this deformity interferes both with proper pronunciation and with the mastication of the food.

Leaving saddle-shaped palates out of consideration, it seems that there is some connection between idiocy of all types and the healthy nutrition of the teeth. I have noted cases in which the teeth have fallen out and decayed in youth, where the idiocy was the result of hydrocephalus, meningitis, or traumatic injury of the brain. It is difficult to understand why bad teeth should be so common with idiots. If I may trust my own observation, lunatics do not seem to have worse teeth than the classes from which they are drawn.

In any case, the saddle-shaped palate is a pretty common correlation or accompaniment of genetous idiocy, and its occurrence affords a strong presumption that the malady was congenital. It is not frequently met with in microcephalic idiocy, nor in cretinism, where the teeth are generally bad; indeed Professor Lombroso makes flatness of the hard palate one of the most constant characteristics of the cretin skull.¹ It is equally

¹ See my Report upon some cases of Microcephalic Idiocy and Cretinism in the *Edinburgh Medical Journal*, September 1875.

Dr. Blackie, *Cretins and Cretinism*, Edinburgh, 1855, describes the case of a boy at the Abendberg, where "the hard palate was much misformed." The head was small and ill-shaped, and it does not seem certain that he was a cretin. His third case, a girl, evidently a cretin, had "the hard palate deeply hollowed."

Sardinian Report, p. 11, "Après la chute des dents du lait il n'en repousse plus chez quelques Cretins." Stahl says (Beitrag zur Pathologie des Idiotismus Endemicus genannt Cretinismus in den Bezirken Sulzheim, and Gerolzhofen in Unterfranken des Königreichs Baiern, 1843)—"Es tritt die Zahnbildung zur normalen Zeit und ohne Beschwerden ein, p. 337. Die Zähne sind in der Regel verdorben, cariös, nach aussen gedrückt, mangelhaft, hie und da aber auch vollzählig und perlweiss," p. 341.

Dr. Saint-Lager, *Causes du Crétinisme et du Goitre Endémique*, Paris, 1867, p. 10, gives as an essential sign of cretinism, "Évolution tardive et irrégulière des dents, carie prématurée."

wanting in the other forms of idiocy arising from causes operating after birth.

It would be interesting if we were able to fix from what stage of foetal life this deformity may be held to date. I have examined some preparations of the bones of the foetus as well as the skulls of monkeys, in the expectation of finding that a highly vaulted palate was the result of arrested development. I found, however, that in the human embryo the portion of the palate formed by the upper maxilla and palatal bone was flatter than in the adult. The palate of most monkeys appears also to be flat. That of the gorilla has a trough-shaped form, similar to what I have seen in a few idiots; but this in the ape seems to be dependent upon the prognathism of the powerful upper jaw and the great strength of the alveolar processes, whereas, in the cases with which I have compared it, the jaw, though narrow, and now and then somewhat trough-shaped, is not generally prominent, the narrow appearance being owing to diminution of the normal breadth rather than to increase of length. In the first years of childhood, however, the arch of the palate is higher and less rounded than it is in the adult. In the foetal, as in the infantine skull, the pillars of the nares seem proportionally shorter than they are at a later age. As stated in Quain's *Anatomy* "the horizontal plate of the palate bone exceeds the vertical one in length in the foetal skull."

Genetous idiots are seldom well made. They are often dwarfish, and long retain an infantile appearance.

"Baillarger," as we learn from Griesinger, "presented before the Academy of Medicine (26th May 1857) a young woman, æt. 27, who had the intelligence and inclinations of a child of four years. She is about three feet high, the body very fat; the second dentition commenced when she was eighteen, and at twenty-seven was not completed. Menstruation had not yet set in."

"I know of another remarkable case of this kind, in which, in consequence of a blow on the head during childhood, the development, which had till then been normal, was completely arrested. If, however, the extreme cases of this kind are very rare, the moderate cases are, on the contrary, extremely common. They constitute the numerous class of children stopped in their growth (*enfants arriérés*), whose peculiarity consists in the circumstance that without special deformity, with no symptoms of cerebral disease, the whole mental and bodily development proceeds very slowly. Those individuals are all small; their sexual system, with certain exceptions, is late in developing, and sometimes is never developed at all."¹

Genetous idiots sometimes sit or sleep in strange postures, which may be unalterably confirmed by habit. The worst cases have automatic motions, swinging of the body or head, and they are often liable to diseases of the nervous system, such as chorea or fits. Deformities are frequently met with in different parts of the body; the most common are hernia, wad-shaped fingers, one or two toes of abnormal shortness in each foot, squinting, rolling of the eyes, fissures of the iris² (*coloboma iridis*), strange shapes of the ears, and club-foot. The testicles are occasionally wanting, sometimes there is only one. The hair on the pubis is generally scanty.

Dr. Ludwig Meyer has found in two idiots that the difference in length between the upper and forearm, and the leg above and below the knee, is less than the average. In the foetal condition the upper arm is shorter than the forearm, till about the fiftieth day, when they become equal; and

¹ *Mental Pathology and Therapeutics*, p. 377.

² Two cases of coloboma, both confined to one eye, were examined by our consulting oculist, Dr. Argyll Robertson, and found uncomplicated with any other affection of the visual organ.

in the gorilla the difference in length between the two is less than in man.

Out of eight measurements, I found that the forearm was only fifteen millimetres shorter than the upper arm in a well-marked case of genetous idiocy ; next to this the smallest difference was fifty millimetres, but this occurred in a healthy man six feet high. In all the other subjects measured, six of whom were idiots, the difference was greater.

I once saw an imbecile boy with whom the umbilical cord had entered close beside the urethra. There was no navel on the belly, the boy had incontinence of urine, and the scrotum and testicles had sloughed away. He was in a very miserable state, with ulcers and excoriations around the urethral orifice. Other malformations are revealed by dissection, deficiencies of the valves of the heart, cyanosis, abnormal distribution of the blood-vessels, lobulated form of the kidneys. If a lengthened dissection could be made of the whole body, it is likely a great many interesting peculiarities would be discovered in idiots.¹ The dyscrasy which accompanies or causes genetous idiocy affects both the constitutional vigour and the symmetrical growth of the frame, though not equally in every part. Nature works like a bad sculptor who fails to give the proper form sometimes to one

¹ Mr. E. Carver, Demonstrator of Anatomy in the Cambridge University, who dissected the body of an idiot, found many irregularities in the arteries and muscles.

Various arteries in all parts of the body were found to have peculiarities in their origin and communications. Abnormalities were also observed in connection with the palmaris longus, lumbricales, and extensor muscles of the thumb. Certain idiosyncrasies were also noticed in the skull, a Wormian bone on either side between the lesser ala of the sphenoid and the orbital plate of the frontal bone ; an unusual thickness of the walls ; unevenness of the internal surface ; the oblique diameter from the left side of the occipital bone to the right side of the frontal bone was long, at the expense of the opposite diameter.—See *Journal of Anatomy and Physiology*, May 1869, quoted in Dr. Horace Dobell's Reports on the Progress of Medicine, p. 243. London, 1871.

member of the body and sometimes to another. There are errors, now here and now there ; and some parts are more happily shaped than others. Occasionally, however, genetous idiots are strong and good-looking, with well-formed heads, good teeth, and no deformities whatever. It is likely enough that the progress of pathology will enable us to separate this class into several subdivisions.

Varieties.

Dr. Langdon Down and others have pointed out a Mongolian type amongst genetous idiots. Many of them are



Fig. 2. Mongolian Idiot.

dwarfish, and have broad faces and squat figures, and a variety has been described and studied, offering some of the most striking features of the Tartar¹ or Mongol.

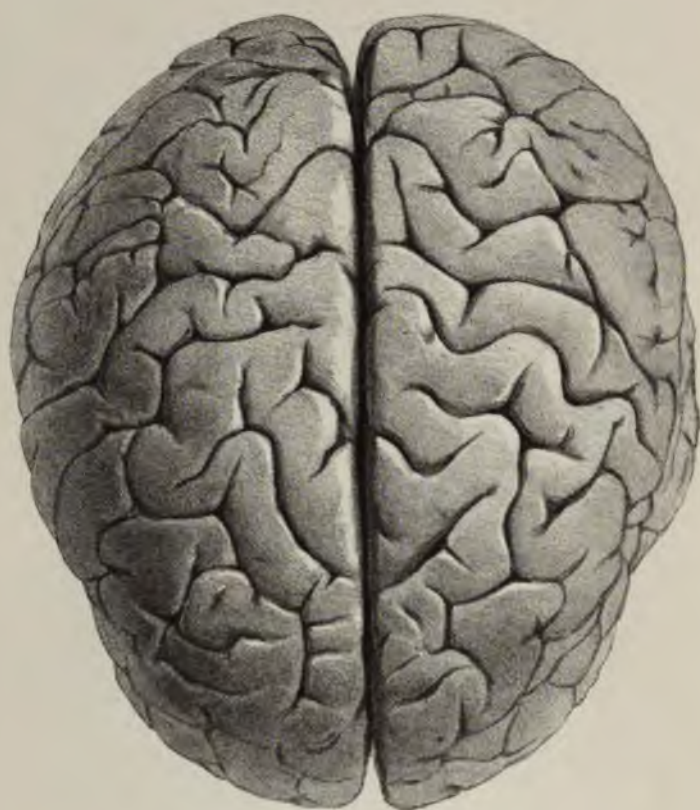
¹ "Observations on an Ethnic Classification of Idiots," by Dr. Langdon Down, in *Clinical Lectures and Reports of the London Hospital*, vol. iii., 1866, p. 259 ;

The most common characteristics are :—the head is somewhat small and obtusely rounded ; the antero-posterior and lateral measurements are nearly equal ; the features are broad ; the upper superciliary margin of the orbit is obliquer than usual, giving the upward slant to the outer droop of the arch of the eyebrows, so striking a feature in Chinese drawings ; the inner eyelid comes down towards the nose with a more rapid slope ; the bridge of the nose is flat, making the unusual distance between the eyes more readily noticed ; the nose itself is short and pre-morse ; the tongue is rough and hacked ;¹ the figure is dwarfish and squat, the hands and feet are short and broad.

also the case of Martinetti Colomba, described by Professor Lombroso, "with olive complexion, black hair, thick down on the forehead and chin, and oblique or quadrangular orbits." A short account of this woman is given in my Report upon some cases of Microcephalic Idiocy and Cretinism.—*Kalmuc Idiocy*. Report of a case with Autopsy, by John Fraser, M.B., with notes on sixty-two cases by Dr. Arthur Mitchell, Commissioner in Lunacy.—*Journal of Mental Science*, July 1876. The lithographs already published in the *Journal of Mental Science* are here given. The patient was a short, slenderly made woman, aged 40 years. The intellect was equal to that of a child from a year to eighteen months, but she could not speak. The principal physical peculiarities were :—The third and fourth toes were unusually small, but symmetrical, on either side. The skull was very light, and asymmetrical. The internal fossae were unequal ; the left occipital fossa $\frac{3}{4}$ ths of an inch broader in the transverse direction than the right, and the right middle fossa evidently broader than the left. The sutures were remarkably open, the frontal being still persistent ; and there were five Wormian bones. The nasal bones were absent. The brain weighed 40 oz. It was apparently healthy in structure, but the configuration was asymmetrical. There was bulging in the right frontal and left parietal regions, and slight flattening in the left frontal and right parietal lobes, with asymmetrical form in the covering bones. The gyri were simple ; anteriorly many of the sulci were very deep. The heart was small, and the aortic valves were fenestrated.

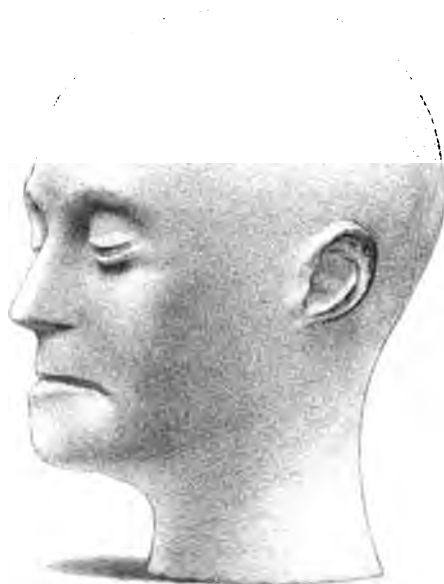
Dr. E. Seguin on *Idiocy*, New York, 1866, Observation xxxi. p. 381.

¹ The unevenness of the tongue is owing to the greatly-increased size of the fungiform papillae, and the furrows are simply owing to the cessation of these enlarged papillae at certain lines. On examining these mushroom papillae with the naked eye, they are found to have an outer margin, somewhat translucent in the sunshine, and the disc of deep red generally in the centre,



BRAIN OF E.M. A KALMUC IDIOT.

M^r Farlane & Erskine Lith^{rs} Edin^g.



SKULL, CAST AND PHOTO OF E.M. A KALING TONK.

I cannot find much in common in the complexion, but Dr. Down says "the skin is of a slight dirty yellowish tinge, and is deficient in elasticity, giving the appearance of being too large for the body." My own observations scarcely confirm the statement of Dr. Mitchell: "that the mental state in this variety is as distinct, as peculiar, and as steady as the physical." It is said that they are affectionate, fond of music, of dress, and of gay colours, traits rather common to all idiots, than peculiar to any. Moreover, two of them in our house do not seem to resemble one another in disposition; one is irritable, the other very shy and good natured, and neither of them appear to be fond of music.

It is to be noticed Dr. Down's description of their mental characteristics do not reproduce one of the traits mentioned by Dr. Mitchell. What he dwells upon is their power of imitation, and their lively sense of the ridiculous, often shown by mimicry, and their abnormal co-ordinating faculty of motion. He also says that they lose a large amount of energy in the winter, their mental power declining with the external temperature. The Mongolian type is not unfrequently seen amongst children, or indeed grown-up people, who are not any way deficient in intelligence.

Seguin, who describes an idiot of this sort in graphic language, hazards the hypothesis that it is a variety of idiocy connected with some form of hereditary cretinism. But it occurs in districts where goitre and cretinism are quite unknown. Dr. Down thinks they are of a tubercular tendency, and that this is the hereditary origin of the degeneracy. According to Niépce, cretins are not much subject to phthisis. Though it is noteworthy that cases of genetous idiocy should

or sometimes a little to one side of the pale circumference. This appearance is easier seen with a lens, and in looking at it with a larger power the round red disc is resolved into a number of separate red dots. I have found this appearance of the tongue well marked in one idiot at least who has not the Mongolian caste of features.

tend to resemble some cases of cretinism, or remind us of racial types, it is not consistent with our scheme of classification to found classes on merely physiognomical traits. If we are to found a Mongolian type, perhaps we might have a Grecian type too, for I noticed that out of thirty-seven cases of genetous idiocy, fourteen had what may be called the Grecian aspect of the face, the forehead and the nose running in an almost uninterrupted slope. Like Dr. Down, I have noticed an American Indian type amongst idiots; and that learned physician has seen idiots who arrange themselves round the Ethiopian and Malay varieties. Nevertheless, such curious co-relations as the Mongolian features and the rough papillated tongue, when persistent, like Darwin's deaf cats with blue eyes, and the Russian hairy men with only two or three teeth, ought not to be lost sight of, and may yet help to guide us to some new discovery or generalisation in the etiology or pathology of idiocy.

Cretinoid Idiots.

Mr. Fletcher Beach and Dr. Hilton Fagge have described several cases of children of low stature, broad features, wide distance between the eyes, wings of the nose thick, mouth large, generally open, lips thick, hands and feet broad and short. I saw one of this variety at the Clapton Asylum, and easily recognised him by the general cretinoid appearance. They were late in walking, and were all idiotic or imbecile save one, in whom no hebetude of intellect appeared. The distinguishing characteristics of these children was the appearance of a small soft symmetrical protuberance or ridge, visible to the eye, on each side of the neck, above the clavicles, in the posterior triangles of the neck. These were found on dissection to be fatty tumours, or general enlargements of the fatty deposit in this region. In one case the enlargements disappeared during an exhausting illness, and were not found

after death. At first this variety was thought to be always associated with want of the thyroid gland; but this was found not to hold good in every instance.

It is a rare affection. Most of the cases described have lived in or about London. Nothing is known about its causation. Six necroscopies have been already published.¹



Fig. 3. Cretinoid Idiot.

The child whose portrait is given, by the kind permission of Mr. Fletcher Beach, was fifteen years of age. She was 38 inches in height, and weighed 3 stones 3 lbs. She was very fat; the head was flat at the top, and spreading out at the sides, measuring 11 inches longitudinally, 10 inches trans-

¹ The following original articles have appeared on this subject, one by Dr. Hilton Fagge, in the *Medico-Chirurgical Transactions*, London, 1871, another by the same author in the *Transactions of the Pathological Society of London*, vol. xxvii., London, 1874; a paper by Fletcher Beach, M.B., in the same volume; and another, also by him, in the *Transactions* for 1876. See also *British Medical Journal*, July 27, 1872, for the description of a case. The child whose portrait is reproduced is minutely described in a communication in the *Journal of Mental Science* for July 1876.

versely, and 19 inches in circumference. The teeth were regular and in good condition.

She was of a very cheerful disposition, and though she did not say much, she would show by her manner her appreciation of any amusement that was going on. She went to school in the asylum, and could say her alphabet, spell a few words of three letters, and write from dictation two letters. She could add to 5, count to 50, multiply by 2 up to 12, and could distinguish three colours. She could hem a little. From this it will be seen that she had a certain amount of intelligence. She was cleanly in her habits; her appetite was good, and she slept well. She had menstruated two or three times.

On removing the brain the foramen magnum was found to be smaller than normal, and on each side, near its margin, was an elevated rim, the space inclosed being triangular in shape. The clivus was very steep; the spheno-basilar suture was still connected with cartilage. The brain weighed thirty-four ounces; the convolutions were distinct and coarse, measuring half-an-inch in width. A microscopical examination of a convolution was made, but no general wasting nor signs of inflammatory change were found. In this, as well as in another case examined by Dr. Savage, the vessels were tortuous, and the cortical layer was thicker than usual. There was no trace of a thyroid gland, but the two fatty tumours were found in the usual situation, not defined or encapsuled, but sending out processes under the sternomastoids and clavicles.

The name of sporadic cretinism, given to this variety, seems to me an unhappy one, as names implying a questionable theory are to be shunned. It differs from cretinism both in its characteristics during life and its appearance after death. The only resemblance is in the broadness of the features and low stature. This, however, is not common to all cretins, and if accepted as a sufficient ground of classification, would in-

clude many other cases of genetous idiocy which have neither the fatty enlargements nor atrophy of the thyroid glands.

Prognosis.

Genetous idiots form a large class, generally twice as large as any other, though there is very little doubt that in some districts they are proportionally more abundant than in others. It appeared to me that amongst the children at the Clapton Asylum for London paupers, the proportion of genetous idiots was much smaller than at the Larbert Institution. The general prognosis is better than in most other classes.¹ As it is a large class it comprises some of the worst and some of the most improvable cases, solitary idiots as well as imbecile and feeble-minded children. We must, therefore, in forming a prognosis, have recourse, in a great degree, to those general tests, which are also of use in examining other kinds of idiocy. We ought, by carefully put questions, to ascertain the amount of intelligence existing, the degree to which speech is exercised, the knowledge of number possessed by the child, as well as the power of attention and of memory. It is a bad sign when the grasp is loose, or readily relaxed, when the eye cannot be fixed, and when there are automatic motions. The power of muscular motion, as shown in walking over the floor or across a plank, or, in better cases, of carrying a vessel full of water, is a surer test than that of tactile sensibility. Congenital idiots of the lower type are often very deficient

¹ Dr. Langdon Down writes—"We have learned by experience this important fact, that the child who has been born with defective intellect is more susceptible of improvement by physical and intellectual training than the child who has been born with full possession of his brain-power, and has afterwards been deprived thereof."—*Op. cit.* p. 12. Dr. C. T. Wilbur, in the Tenth Report of the Institution for Feeble-Minded Children at Jacksonville, Illinois, writes—"Congenital idiocy furnishes the most improvable subjects for the school-room and for training in useful occupations. The majority of them in the degree of mental deficiency stand upon the plane just below the lower grades of ordinary intelligence."

in these respects. It is rare that cases where the circulation remains torpid, as indicated by feeble pulse, cold feet or hands, or other signs, make much progress in education and training. On the contrary, the prognosis is good where the child is active and vigorous, noticing things, where he has begun to speak before six or seven, and has got a firm grasp, and a normal amount of tactile sensibility, and the faculty of attention capable of being sustained.

Illustrative Cases.

Two views may be held respecting genetous idiocy. We may consider all its different abnormalities and deformities, whether in the head or the body, as owing to a constitutional dyscrasy, one of whose most unfortunate results is a diminution of the power of the nervous centres; or again, we may regard the perverted nutrition of the body as the result of the early injury to the functional power of the brain, for some physiologists hold that the nervous centres have a great power in modifying the nutrition of the body. A good deal may be said on either side, but it is not expedient to prolong the length of this chapter by a speculative discussion which would bring out no fixed conclusion. We shall therefore pass on to give a few remarkable cases. I had once an opportunity of observing two congenital idiots, a boy and a girl, who were twins. It might therefore be presumed that their mental deficiency was owing to the same causes. The father's mother had been insane, the father himself was much addicted to drinking, and the mother attributed the idiocy of the twins to his coming in drunk and threatening to kill himself when she was in the fifth month of gestation. The wife's mother died of epilepsy, though long after the birth of her daughter. The mother of the twins has had five children, one of whom, the youngest, is feeble-minded.

These unfortunate twins were both well made, without

any peculiarity of appearance, save that the girl was very short for her age. When nine and a half years old she was only 3 feet $7\frac{1}{2}$ inches in height, while her brother was 9 inches taller. Neither of them had a vaulted palate. The size of the head was much alike in each;¹ but the frontal portion was larger than the portion behind the ear in the boy.

The boy was fair-haired, while his sister was red-haired. He appeared to be of the phthisical, while she was of the scrofulous diathesis. They were both subject to attacks of bronchitis, and when the one caught cold the other rarely escaped. When between five and six years of age he had frequent epileptic fits; his sister never had any. Notwithstanding this the boy was one of the most improving cases in the house, while the girl was one of the least so. She remained a mute, of short stature and infantile appearance, her intelligence about equal to that of a child of fourteen months. All that she could do was to go simple messages and string beads; but the boy learned to read, and write, and count, to sew and knit, and improved so much both in general intelligence and in bodily growth, that, if it could have been managed to have kept him two or three years beyond his term of five years, I think he might fairly have been discharged as passed out of the stage of imbecility. He was only thirteen years old when he left us.

¹ The following measurements of the head were taken when they were nine and a half years old :—

BOY.			GIRL.		
	Cent.	Inches.	Cent.	Inches.	
1. Antero-posterior . . .	33 $\frac{1}{2}$	= 13 $\frac{1}{4}$	33	= 13	
2. Circumference . . .	51	= 20 $\frac{1}{4}$	52	= 20 $\frac{1}{4}$	
3. Transverse . . .	35	= 13 $\frac{7}{8}$	34 $\frac{1}{2}$	= 13 $\frac{1}{4}$	
Sum . . .	119 $\frac{1}{2}$		119		
From tragus to middle o forehead . . .	12 $\frac{1}{2}$	= 5	11 $\frac{1}{2}$	= 4 $\frac{3}{4}$	
5. From tragus to occipital tuberosity . . .	12	= 4 $\frac{3}{4}$	12	= 4 $\frac{3}{4}$	

K. S. was born of parents said to have been both healthy, and without hereditary disease ; but the mother died afterwards of cancer. He was born with two others, one a boy, who died when three years nine months old ; the other a girl, who died when fourteen months old, during teething. None of them had fits. Seventeen months after, the mother had twins, one of whom died of bronchitis when nine months old. The other, also a girl, died when two years and seven months old, of scarlatina. She had begun to walk, but not to speak. His father assures me that K. S. began to walk when a year old, but was slow at learning to speak, and even now, when he is eleven years old, he speaks with difficulty, but he can give his own name, and write it upon a slate. He is small of his age and looks delicate, measuring 4 feet 4 inches in height. He has only one testicle, which is very small. The head is small and not symmetrical, there being a depression above the lambdoid suture.

The measurements are :—

1. Antero-posterior	.	.	.	.	34
2. Circumference	.	.	.	.	48
3. Transverse	.	.	.	.	32
Sum					114
4. From tragus to glabella	.	.	.	.	14
5. From tragus to occipital tuberosity	.	.	.	.	11

The palate is vaulted and very narrow. The teeth, $\frac{1}{2}$, are irregular in shape, place, and manner of insertion, and are decaying rapidly. The upper lip leaves the protruding incisors habitually uncovered, and both teeth and gums are left bare when he smiles. He is good natured and docile, and likely to improve.

B. E. was born of healthy parents with no known neurotic tendency and no accident at birth. He was one of six children, three of whom were boys, who were all deficient

in intellect, the girls not so. The head was of normal size, as well as that of another brother examined.

B. E. was weakly in infancy, but grew to be strong before passing out of the first years of life, though he slavered up to the age of twelve years. He began to walk and speak when about two years old. The palate was somewhat high, long, and trough-shaped, and the teeth irregular, $\frac{1}{16}$. He was sometimes obstinate and sullen. He could never master the alphabet, but learned to work well. He was extremely faithful and attentive, and very zealous in guarding property, such as preventing the fruit in the garden being stolen, and would have flogged the little boys severely when he caught them at such depredations. He learned to do out-door work, and look after a horse, and is now a strong young man, earning 14s. a week as a surfaceman on the railway. His elder brother, who seemed at first to promise more, did not improve so much under training.

X. B., nine years of age, a twin born at full time. His parents are healthy. The mother is apparently a strong woman, careful of her household, and fairly intelligent for her situation in life. The father is a labourer. He has a sister insane. X. B. was very small at birth, and there was great difficulty in getting him to suck. He began to walk when two years of age, and has only commenced to speak within a few months. He is small of his age; a brother two years younger is taller and broader than he. He is an out pupil, and his sister brings him to school. She was always the bigger of the two, and is of the average intelligence of her years. They resemble one another in no respect save in the colour of the hair. His height is $45\frac{1}{2}$ inches. His sister's height is $50\frac{1}{4}$ inches. His head is small and brachycephalic. The ears are simple with a small lobe; the palate is somewhat vaulted; teeth $\frac{1}{2}$; four teeth above and seven below are decayed. The sister's ears are better formed, the lobe is

larger, and she has only one tooth decayed. The following are the head measurements in each :—

	X. B.		His Sister's.
Antero-posterior . .	32½	.	35
Circumference . . .	48	.	52
Transverse . . .	31	.	34
	<hr/>		
Sum . . .	111½	.	121
From tragus to glabella	12	.	14
From tragus to occipital protuberance .	11	.	10

He has the Mongolian type of countenance, with slanting eyebrows, tongue with enlarged papillæ, short nose with shallow bridge, and considerable distance between the eyes, 3½ centimetres. The mother has four other children, none of whom resemble X. B., save that two of them have got a considerable breadth between the eyes. The boy is generally obedient, docile, and good-humoured ; but slow, torpid, and very shy. He does not appear to be fond of music. He uses very few words, and, although he has only been a few months at school, has made a marked improvement in intelligence.

PATHOLOGICAL ANATOMY.

The principal anomalies met with in the skull of genetous idiots are flatness of the head behind, a rapid slope of the clivus, an osseous rim round the foramen magnum, unsymmetrical size of the cavities on each side, irregularities in the wings of the sphenoid, and differences in the size and shape of the jugular and other foramina ; but these appearances are not constant, and often the skull is quite regular, both in structure and capacity.

The abnormalities found in the brain are of course the most important, as it is to them we must look for an explanation of the mental deficiency. In this field of research pathological anatomy has still much to do. Few cases of

dissections of the brains of idiots have been published, and these few made by various observers, and scattered over a wide medical literature. In order to gain a proper ground for generalisation, all the cases of idiots' brains dissected in asylums or training-schools should be published, whether the results are negative or positive, and a common scheme of observation should be adopted. Little gain would be derived from merely repeating a number of necroscopies, yet no one characteristic lesion has been found in genetous idiocy any more than in cretinism or general paralysis, and our attempts to explain the pathology of idiocy must still wait for the discoveries of physiology. After all that has been written, all the vivisections that have been made, and all the wounds and diseases of the brain that have been so carefully studied, it may be said that the function of no single convolution has been demonstrated beyond dispute, and that the special functions of most of them, if they have special functions, are unknown. It is likely that the experiments of Fritsch, Hitzig, Ferrier, Carville, Schiff, and others, will, in the end, work out some ascertained results; but at present the questions raised by them are *sub lite*, and their observations have not as yet been utilised in studying the pathology of idiocy. In some idiots' brains which I have seen, there was great simplicity in the convolutions, approaching to that of the chimpanzee and other anthropoid apes. In a case recorded by Schroeder Van der Kolk, all the convolutions in front of the central furrow or fissure of Rolando were remarkably short; but those lying behind were of the ordinary size. The radiating convolutions of the island of Reil have frequently been observed to present a smooth surface, even when the imbecile possessed the power of speech.

Professor Betz of Kiew made a demonstration to the Medical Society of Vienna,¹ on the brains of an imbecile and

¹ *Psychiatrisches Centralblatt*, 25 Juli 1873.

two idiots, compared with some brains of children, and casts of the brains of the chimpanzee and greater Pavian monkey. He showed that in the human embryo, about the seventh or eighth month, the external occipital fissure (*sulcus occipitalis transversus Eckeri*) was deeper than at birth; that in the normal adult brain the cleft is shallow, but in the apes it is deep, and includes within its cavity several bridging convolutions. In the idiots the fissure was shown to be deep, but the bridging convolutions were wanting.

Dr. Betz sums up, that in the normal brain the grey substance is a conjoined mass, in the idiot the connection was not so close (*diese graue Substanz beim Idioten auseinander geworfen*).

Asymmetries of the base of the brain are not unfrequent with genetous idiots, proofs rather of a disordered direction of formative power, than explanations of the mental hebetude. The corpora geniculata in one instance, in another the pituitary body, have been found wanting. I have thrice seen the corpora quadrigemina small; in a cretin, Niépce noted these bodies as abnormally large. There are inequalities in the size of the base of the two hemispheres, generally corresponding to irregularities in the bones of the base of the skull.

Sometimes one or other of the commissures is wanting, or there is no corpus callosum. Though the absence of this structure is very rare, its occurrence has excited so much attention that a good many instances are on record. Griesinger, in his well-known work on *Mental Pathology and Therapeutics*, has collected several of these scattered cases. With some there was profound idiocy, in others merely a moderate degree of mental weakness, and sometimes even this did not appear, "Case of Solly (*The Human Brain*, London, 1826, p. 433), a boy, aged seventeen, always mentally weak, but took delight in reading religious books; was benevolent, docile, sleepy, inclined to stumble and fall. Besides the want

of the corpus callosum, a cyst was found in the brain. Case of Paget (*Med.-Chir. Transact.*, vol. xxix., 1846, p. 55), girl, aged twenty-one, amiable and childish disposition, showed no striking peculiarity, good memory, actions rapid and inconsiderate, speech sharp and abrupt; the corpus callosum was quite rudimentary, being represented by a thin band of horizontal fibres; the septum and middle part of the fornix were absent. Case of Mitchell Henry (*Med.-Chir. Transact.*, vol. xxxi., 1848, p. 239), a boy, aged fifteen, gentle, but slow to learn, dull, sleepy, much disturbed when rapidly spoken to; the brain normal, the corpus callosum represented by a horizontal band of fibres, $1\frac{1}{2}$ inch broad, the septum and middle anterior part of the fornix absent." Dr. Hagen, at the Medical Society of Erlangen (1872), showed the brain of a male imbecile, which weighed as much as 1508 grammes. The corpus callosum was entirely wanting, and both the posterior cornua of the ventricles were distended with serum.

There is a case reported by Dr. J. Sander,¹ where a woman of twenty-one, who died of pericarditis, was found entirely to want the corpus callosum. She had no trace of mental derangement. Professor Malinverni Germano² of Turin has lately published a remarkable case of deficiency of this structure. A subject was brought into the anatomical rooms for demonstration of the corpus callosum, when it was found that the very organ in question was wanting. The gyrus fornicatus, and the septum lucidum, were also absent. The convolutions of the brain were quite normal; but the anterior commissure was somewhat larger than usual. The man's antecedents were quite well known; he had served eight years in the army, and had afterwards lived by field labour. He bore the character of an industrious, quiet, and tolerably

¹ *Zeitschrift für Psychiatrie*, xxxi. Band, 3 Heft.

² *Cervello di uomo mancante del Corpo Calloso*, Turin, 1874, quoted in *Psychiatrisches Centralblatt*, No. 7, 1874.

intelligent man. No mental deficiency had been suspected during his life. There is mention of an idiot girl of eighteen years of age, in whom the corpus callosum was also wanting. The function of the corpus callosum is unknown, and it is clear that its absence, uncomplicated with other deficiencies, is not sufficient to cause idiocy. In fact its absence is generally accompanied by other abnormalities in the brain.

In the well-known case of Alexandrine Labrosse, recorded in Cruveilhier's *Pathological Anatomy*, the cerebellum was absent. At her death she was a girl of eleven years old, of weak intelligence, but decided character. There was some disorder in the movement of the legs, and unequivocal sexual propensities had been manifested. This observation gave a severe blow to the theory of Gall, who placed amativeness in the cerebellum. Other cases have since been published,¹ where this organ was wanting, and where the intelligence was also weak with strong sexual propensities. As the cerebellum is not held to have any regulating power over the intelligence, we must look to other parts for an explanation of the mental deficiency.

In some cases the brain is paler than usual. Shrinking of the convolutions, especially of the frontal ones, is not uncommonly observed. The following case is perhaps worth quoting. It was thought to be one of genitous idiocy, complicated in early years with occasional fits. The boy was peevish in disposition, the intelligence that of a child of a year old, mute, but able to hum tunes. Though the appetite was voracious, the boy was always thin and pale, and he died at the age of sixteen from mesenteric phthisis. The aortic valves were incompetent; the palate was high and cleft behind. He had a supplementary eye-tooth on the left side. The head was large and finely formed, but flat behind, the skull-cap was thick, and all the sutures

¹ See my German Retrospect, in the *Journal of Mental Science*, October 1876, p. 470.

closed, or nearly so. The encephalon weighed 53 ozs. On opening the skull-cap there was seen a clear limpid fluid under the pia mater and dipping down between the convolutions. It was about two lines deep at the posterior part of the vertex, the body lying on its back. The veins going to the sinus were seen passing through the layer of fluid. The surface of the large finely-convoluted brain with its pellucid covering, was beautifully shown by a ray of sunshine which fell upon the head of the dead boy. The radiating gyri of the island of Reil were not to be discerned on the right side; on the left, lines of division had been formed. On the right hemisphere the fissure of Rolando ran into the longitudinal fissure (a variety not very rare), and the parallel fissure (sulcus temporalis superior) was unusually long and deep. The brain was finely convoluted, especially in the frontal lobe, which was large. The gyri of the left hemisphere were not so carefully examined, as it was cut to pieces for microscopic examination. Selected portions were sent to Dr. J. Batty Tuke. After carefully examining the several portions of brains sent, this distinguished pathologist could find "no trace of heterogenous disease, simply a general coarseness of constituents; the fibres," he writes, "are distinctly coarse, and the cells are granular and not well formed; they are so granular that the most active cleaning agents employed for a long time do not serve to demonstrate either nucleus or neucleoles; they seem normal as to number and distribution, nuclei of neuroglia, small but in ordinary number; the vessels are not thickened as to their walls, but they have a tendency to varicosity."

In some cases the deficiency does not appear to be in the outer form and texture of the nervous centres, as seen by the naked eye, but in the histology of the tissues as revealed by the microscope. Without a microscopical observation indeed no examination of this kind is complete.

The researches of Dr. M. Jastrowitz¹ seem to throw light upon the minute structure of the brain which entails idiocy.

In the foetus Dr. Jastrowitz finds a fundamental difference which throws great light upon the nature of the molecular stroma. Instead of the white substance of Schwann which surrounds the axis-cylinder in the adult, the tissues are embedded in the molecular substance which abounds in the white matter of the hemispheres, and, indeed, makes up the most of its composition. Axes-cylinders are found at a very early period of foetal life, lying naked in the white matter of the brain, and the molecular substance becomes less and less frequent, and at last disappears as the development of the white substance of Schwann goes on in the growing child—and this change of molecular stroma into the white substance of Schwann can be followed to a certain degree. We cannot, therefore, continue to regard this molecular substance only as a protecting substance, but must also view it as a species of embryonal white substance which fulfils the same function, viz., the isolation of the axes-cylinders from one another. Upon this conclusion the author bases the farther inference that the molecular matter has the same function in the grey nervous centres of the adult, where it is seen surrounding the axes-cylinders and the prolongations of the nerve-cells, which are, according to Max Schultz, primitive fibrillæ without any covering.

The author finds the nerve-cells with all their characteristic marks fully formed at birth. He considers that the appearance of the fatty granular cells in the embryo is connected with the formation of nervous tissue, as these cells are observed to be present during the regeneration of a severed nerve.

Dr. Jastrowitz regards the presence of these granular cells in the spinal cord of new-born children, as well as infants

¹ See his valuable Studien über die Encephalitis und Myelitis des ersten Kindesalters, in the *Archiv für Psychiatrie und Nervenkrankheiten*, iii. Band, 1 Heft. Berlin, 1871.

at a later age, as a proof of morbid action. The general diffusion of these cells in the white substance of the brain of the six months' child, and their partial appearance in the child of nine months old is also regarded as a sign of disease; for though these cells might have had a normal existence in earlier periods of the life of the embryo, their persistence is incompatible with the proper exercise of the functions of the developed organs.

From these researches, it seems probable that the deficiency in congenital idiocy may be in the structure of the minute tissues of the brain, in the persistence of anatomical elements which are normal in the embryo, but which ought to have passed into another form for the mature human being. There is much difference of opinion amongst pathologists as to the import of the fatty granular cells, some regarding them as a stage in healthy growth, others the residuum of a general decline of nutrition, others as the results of an inflammatory process; indeed they appear in so many tissues, and under such manifold conditions, that their presence in an organ gives but an uncertain conclusion as to the process to which they owed their origin.

Dr. Jastrowitz had an opportunity of examining the body of the infant of an imbecile woman, who had a pretty large, but unsymmetrical head. As the mother had a narrow pelvis from rickets, premature labour was induced, but the child died in a few days. The thorax of the infant was deformed with rickets. The vessels of the brain were much injected, and there were heaps of granular cells in all the lobes. Occasionally inflammation has taken place before birth, which sometimes extends from the brain to the spinal cord.

It must not be supposed that some alteration can always be found explaining, or helping to explain, the idiocy. In common with other observers,¹ I have again and again examined

¹ Dr. R. Boyd's *Diseases of the Nervous System*, No. II., reprinted from

the brain of idiots without finding anything abnormal, either in the size of the brain, the skull, or the membranes. This is more common with the imbecile class than with those who are more deeply fatuous. It may be objected that in these cases no microscopic examinations were made, and this is true with some of them ; but there are instances where all the resources of pathological observation have been exhausted without our being able to find anything out of rule.

Mr. S. Messenger Bradley¹ has given the dissection of the brain of an idiot who died at the age of thirty-five, blind from birth, and of very low intelligence, unable to dress himself, or to do anything beyond carrying his food from his plate to his mouth with his fingers, and repeating, parrot-like, a few words and phrases.

The brain weighed 28 ozs. The most important peculiarity was, that a transverse fissure ran within one-fifth of an inch of the parallel sulcus, so as nearly to disjoin the parietal and occipital lobes ; but the annectent convolutions, though small, were present, and crept into the narrow space between the two sulci. Neither the deficient connection of the lobes, nor the smallness of the brain going along with the want of vision, could be held fully to explain the deep fatuity of the idiot, and it might have been supposed that a good anatomist would have found, after a careful microscopical examination,

Journal of Psychological Medicine, vol. ii., part 1, reports his necroscopies of 23 idiots and imbeciles,—12 males and 11 females. The brain is stated to have appeared natural in 8 cases ; in several others the variations from the normal standard are slight, as “brain unusually large,” or “the grey matter seemed more in proportion to the white than in an older subject examined,” or “there was more fluid in the ventricles than natural. In a male idiot, aged 36, the convolutions were not fully developed, and the organs of the trunk, like those of a young person, not fully developed. The heart was found abnormally small in 9 cases.

¹ Description of the brain of an idiot by S. Messenger Bradley, F.R.C.S., Lecturer on Human and Comparative Anatomy, Royal School of Medicine and Surgery, Manchester, in the *Journal of Anatomy and Physiology* for November 1871.

something abnormal in the cells and fibres of the brain. Nothing, however, was detected, nor could Professor Roscoe, who analysed the brain, discover any departure from, or want in, its most important clinical constituents.

Dr. John Fraser of the Fife Asylum, who is a very good microscopist, made a most careful examination of the brain of the "Kalmuc idiot," of which the lithograph is reproduced, but he could find nothing abnormal in the tissues.

Treatment.

The treatment of genetous idiocy is mainly mental, moral and educational, as will be explained hereafter. I have tried passing galvanic currents through the brain at different points in selected cases; but the results were not encouraging. The system should be invigorated by regular exercise, gymnastics, judicious diet, and other hygienic measures. The scrofulous diathesis should be treated in the usual manner. Where the circulation is feeble, and the extremities habitually cold, I have sometimes increased the quantity of flesh meat, and given coffee twice a-day. Great care is required to prevent such children taking chilblains, and preventing them going into ulcers when they do appear. Bathing the feet every night during winter in a solution of alum has a preventive effect. To get slow ulcers to heal, I have several times been obliged to raise the temperature of the foot night after night continuously by artificial heat. The gums should be kept free from carious stumps, and astringent applications, such as alum and kino used in cleaning them. Often washing the mouth with Condyl's fluid is of benefit in diminishing the foetid breath. Genetous idiots from the towns, where they are apt to suffer from confinement, generally improve more than those from the country, with whom the tone of health is stronger.

CHAPTER VI.

MICROCEPHALIC IDIOCY.

Nature and Symptoms.

THE relation of the size of the brain to mental power is a puzzling question in physiology. The phrenologists used to say, size, other things being equal, is a measure of power, but unhappily other things never were equal. Even taken with this perplexing though necessary qualification, the proposition could not be proved. An ant, for example, has wonderful perceptions, instincts, social tendencies, affections, and mental powers, different indeed from human intelligence, but still belonging to the class of psychical faculties, and all this, as Darwin has remarked, with ganglia not so large as the quarter of a small pin's head. Suppose this molecule of neurine to weigh fifty ounces, would its capabilities be increased proportionally? What a terribly energetic and strangely instinctive and intelligent animal we should have. But it is clear that the intelligence of an animal, even of the same order, does not increase with the rate and volume of the brain, for in that case the elephant, whose brain weighs between eight and ten pounds, ought to be three times as clever as man. Physiologists then said that we must take into consideration the proportion of the brain to the size of the body. This, however, again failed, for a monkey, a weasel, and many birds, would have more intelligence than man, as their brains bear a higher ratio to the weight of the body; and, indeed, the proportion of the weight of the brain to the body is in childhood sometimes

six times as great as in the adult. Nor can one see how his intelligence would be diminished if his body were twenty times larger than it is, unless certain portions of the cerebrum are devoted to the management of the motions or organic functions of the frame; and this may be the case, but until we can separate those parts concerned with the psychic force, and those parts whose function it is to incite or regulate muscular motion or trophic changes, we are very much in the condition of a man who would try to weigh a nugget of uncertain mineral composition in order to determine the amount of gold it contains. Even if we lay aside all comparison of different species of animals, and take man alone, no one ever affirmed that the possessor of the heaviest brain must have the greatest intelligence, or that the slippery force of thought, the *vivida vis animæ* can be measured by the balance. In a paper on the weight of the brain in insanity, we are told that the brain of an imbecile, aged 75, weighed 63 oz. 4 drachms, that is heavier than Dr. Abercrombie's,¹ and in a genetous imbecile who lately died in the Hants County Asylum the brain weighed 70½ ounces. If, to gain a wider field for generalisation, we leave individuals for races, we still meet with the most perplexing contradictions to our hypothesis. We cannot affirm that the races which have shown most intellectual force have ever had the largest heads, unless we are prepared to say that the negro is mentally superior to the Hindu, or that the old Peruvians are to rank no higher than the Hottentots and the savages of Australia.

Dr. Daniel Wilson² tells us that "the Peruvian's head unquestionably ranks amongst the microcephalous races."

There is no doubt that the Peruvians, as a people, had carried metallurgy to as high a development as has been

¹ *Edinburgh Medical Journal*, March 1872.

² *Brain-weight and Size in Relation to Relative Capacity of Races*, by Daniel Wilson, L.L.D., etc., Toronto, 1876, p. 47.

attained by any race ignorant of working in iron. They had acquired great skill in the arts of the goldsmith, the engraver, chaser, and modeller. Pottery was fashioned into many artistic and fanciful forms, showing ingenuity and great versatility of fancy. They excelled as engineers, architects, sculptors, weavers, and agriculturists. Their public works display great skill, combined with comprehensive aims of practical utility ; and alone, among all the nations of the new world, they had domesticated animals, and trained them as beasts of burden. It is not, therefore, without reason that Dr. Morton adds, "When we consider the institutions of the old Peruvians, their comparatively advanced civilisation, their tombs and temples, mountain roads, and monolithic gateways, together with their knowledge of certain ornamental arts, it is surprising to find that they possessed a brain no larger than the Hottentot and New Hollander, and far below that of the barbarous hordes of their own race. For on measuring 155 crania, nearly all derived from the sepulchres just mentioned, they gave but 75 cubic inches (equivalent, after due deduction for membranes and fluids, to a brain of 40·1 oz. avor. in weight), for the average bulk of the brain. Of the whole number, only one attains the capacity of 101 cubic inches, and the minimum sinks to 58, the smallest in the whole series of 641 measured crania. It is important further to remark, that the sexes are nearly equally represented, viz., 80 men and 75 women." What is quite as singular as the small size, almost all these Peruvian crania were artificially deformed, a circumstance which will be considered when we come to traumatic idiocy.

Some hold that it is in the fineness and degree of complexity of the convolutions, or in their symmetry on each hemisphere, that the power of thought depends ; others say that we must look to the extent of surface ; others to the total amount of grey matter separated from the large mass of white matter of the brain. Moreover, the brain is but one factor.

The quality of the blood which circulates through every part of the nervous tissue, the quickness of the circulation, the method of distribution of the vessels, and the assimilative power existing between the nourishing fluid and the nervous matter, have, no doubt, all something to do with the liveliness and power of the mental impressions.

In considering the mental powers in relation to the material organs of thought, we have to keep in view not only the size of the brain but the complexity of the convolutions, and their connections with one another, the commissures which join the two hemispheres, the amount of the grey matter, the general sensibility of the nervous system, the nature of the blood, the temperament and the general vigour of the constitution, for all these go to make the sum mount, and a deficiency in any of them may cause the harmony to jar.

It will be presently seen that the study of microcephaly throws light upon this somewhat obscure field of inquiry.

As far as my own measurements go, they confirm the conclusion of Esquirol, that the average size of the heads of idiots, excluding those of hydrocephalic ones, is somewhat smaller than the average size of healthy people ; but to this rule there are many exceptions. Some have heads larger than the average size of sane individuals of the same age ; and I have measured heads of people of normal intelligence, which are smaller than any in the Larbert Institution, with two or three exceptions. Moreover, those idiots who have larger heads do not surpass in intelligence those who have smaller ones. Save in the cases of hydrocephalic and microcephalic idiots, the size of the head gives no estimate of the comparative intelligence of the children.

Seguin gives an able summary of the state of the question in the following passage : ¹—"Gall, giving a strong impulse

¹ See Report of the Commissioners on Idiocy, to the General Assembly of Connecticut. New Haven, 1856, p. 57.

to the investigation of the functions of the brain, had called up the question of the cause of idiocy: a skilful theorist, he thought he had discovered in idiots proofs of the truth of his system of phrenology. The authors who succeeded him—Georget, Esquirol, Lelut, Foville, Calmeil, Leuret, Pritchard—seem, on the contrary, to have studied idiocy only to use its phenomena for the destruction of the system of Gall, but not for the benefit of the poor idiots whom they declared incurable. With their single polemical object in view, they spent thirty years in measuring and weighing the heads of living and dead idiots, and they arrived at the following conclusions:—

“1. No constant relation exists between the general development of the cranium and the degree of intelligence.

“2. The dimensions of the anterior part of the cranium, and especially of the forehead, are, at least, as great among idiots as among others.

“3. Three-fifths of idiots have larger heads than men of ordinary intelligence.

“4. There is no constant relation between the degree of intelligence and the weight of the brain.

“5. The different degrees of idiocy are not measurable by the weight of the brain.

“6. A cranium, perfectly formed, often encloses a brain imperfectly formed, irregular, etc.

“7. Sometimes the brain of idiots presents no deviation in form, colour, and density from the normal standard; it is, in fact, perfectly normal.”

It is, however, agreed that there is a certain minimum size of head, below which the possessor is necessarily an idiot. Voisin says that the proper exercise of the intellectual faculties is impossible with a head of from 11 to 13 inches in circumference, and a measurement of 8 to 9 inches from the root of the nose to the posterior border of the

occipital bone. To this rule there has never been an exception. He thinks that heads from 14 inches to 17 inches in circumference, and from 11 to 12 inches for the arc comprised between the root of the nose and the foramen magnum, are too small for ordinary intelligence ; but heads of from 18 to 18½ inches in circumference, though small heads, allow of the regular exercise of the intellectual faculties. Mr. George Combe, who must have measured a large number of heads, apparently quoting this passage of Voisin,¹ renders it, "heads of 18 inches round, give intellectual manifestations regular, but deficient in intensity." Mr. James Straton measured the head of a boy in Aberdeen, aged seven years, of 18 inches circumference, whose brain, by his system of computation, was estimated at 82 cubic inches ; "but it was well balanced, the constitutional temperament highly nervous, and the boy is quite as intelligent as could be expected of his age in his circumstances."²

I think we may therefore assume that below seventeen inches in circumference the manifestations of intellectual power would be feeble. But heads of this small scale are rare even amongst idiots, for idiocy is generally the result of disease, not of smallness of the brain.

I should, therefore, be inclined to give the name of microcephalic to all heads below 17 inches in circumference ; but on a point like this it is difficult to bring observers to one rule. Broca calls microcephalic every cranium which has not been artificially deformed, and whose antero-posterior diameter is less than 148 millimetres = 5 inches 9 lines ; to heads

¹ I give the sentence in the author's own words :—"Les têtes de dix-huit pouces à dix-huit pouces et demi sont encore de petites têtes quoiqu'elles permettent à l'exercice regulier des facultés intellectuelles." *De l'Idiotie chez les Enfants*, par Felix Voisin, Médecin en Chef de l'Hospice des Aliénés de Bicêtre. Paris, 1843, p. 73.

² See *Review of Contributions to the Mathematics of Phrenology*, by James Straton, Zoist, vol. iii. p. 426.

larger than this, but still of small size, he gives the awkward term of demi-microcephalic, without fixing the limit of normal cranial capacity. Topinard gives a horizontal circumference of 349 millimetres = 13 inches 7 lines to the microcephale, and to the semi-microcephale of as much as from 432 = 17 inches to 480 millimetres = 18 inches 10 lines.

It may be well to hold in mind that the average brain weight in man ranges from 40 to $52\frac{1}{2}$ ounces = from 1133 to 1436 grammes, and in women from 35 to $37\frac{1}{2}$ ounces = from 992 to 1341 grammes. Giacomini states the limits of oscillation apparently in both sexes as from 1000 to 1500 grammes, and this is easily remembered. The capacity of a brain weighing $50\frac{1}{2}$ ounces is 1502 c. c. = 91 cubic inches. Man differs from other animals, not only by the greater size of his brain, but by its great increase in size after birth. According to Meckel the weight of the brain in the new-born child is 300 grammes, but it doubles in five months.

We see that in man the mental capacity diminishes with the brain weight if we use large weights, twenty ounces for example; but if we use smaller weights, two or three ounces, for example, we soon find that we cannot establish constant relation between the size of the hemisphere and the amount of mental power shown.

Few microcephales are of ordinary stature and many of them are mere dwarfs. In the accounts published the psychical manifestations are often passed over in a very superficial way, while there are long descriptions, not easy to follow, of convolutions and lobes whose functions have not yet been determined. In general we have more measurements than would be required for a mantua-maker, boot-maker, stay-maker, spectacle-maker, and truss-maker, all at once, but the mental characteristics are passed over in loose terms. It is, however, not enough to know that a human being may grow up with a head no bigger than a "garden turnip;" the interest consists

in knowing what mental power he possesses with his fraction of brain.

There are instances of two and even of three microcephales being born one after the other to the same parents, and there is one case of microcephalic twins. Nevertheless the causes which lead to this abnormality are unknown. It is the rarest of all kinds of idiocy. I have measured no idiot's head in Scotland under eighteen inches in circumference. But, owing to the speculations of Darwin, microcephalic idiots have been carefully studied, whereas those who possess brains of normal size have met with little attention. Charles Vogt has collected, from all available sources, forty-two cases of microcephaly, but many more have been recorded since the publication of his monograph.¹ If we may judge from the cases published, there are nearly twice as many male microcephales as female.

Microcephaly may be either general or partial. Certain portions of the encephalon may be abnormally small or altogether wanting; but in general the deficiency consists in the smallness of the hemispheres. The head is narrow and tapering towards the top, oxycephalic as some call it. On this account the internal capacity of the cranium is smaller than what might be thought from the circumference. The nerves of special sense are generally well developed, and the ganglia of the base of the skull and the spinal cord are much nearer the normal size than the hemispheres. The cerebellum also is relatively much larger than in the normal brain. In the case of a microcephalic idiot in the asylum at Bareilly, the cerebellum was one-half of the weight of the cerebrum,²

¹ *Memoires sur les Microcephales ou Hommes Singes.* Par Charles Vogt. Genève, Bale, 1867.

² Dr. J. H. Lock, the superintendent, says of this case:—"He was unable to articulate, walked very weakly, with a half-running gait, and could only be made to understand about his wants for food and clothing." . . . His height was 4 feet 8 inches; and the weight of his brain—cerebrum 6½ ounces; cere-

the ordinary relation being one to eight. In some microcephales the mental manifestations are very slight. In the infirmary ward of the Clapton Asylum there is a number of poor little creatures with small heads who have never walked, never spoken, can execute no voluntary movement, save perhaps turning the eyes, living an almost vegetable life, yet with warm blood and an organism in most parts the same as our own.

Varieties.

In many of these cases no doubt the brain is diseased. In some instances this has been actually proved by the necroscopy. Dr. James Murray Lindsay, of the Derby Asylum, had under his care at Hanwell a female idiot who died in the seventeenth year of her age. The limbs were misshapen with rickets, but she was able to walk. She was stunted in growth and of a childish appearance. She was unable to say a single intelligible word, but chirped like a bird. She seemed to pay no attention to sounds save the jingling of keys and the playing of musical instruments. The chest, spine, and limbs, were found greatly deformed. The heart was very small, weighing $2\frac{1}{4}$ ounces, with a valvular opening near the foramen ovale. The antero-posterior diameter of the cranium was only $4\frac{1}{2}$ inches, measured from ear to ear, across the vertex it was $8\frac{1}{2}$ inches. The calvaria were very thick and dense, especially in front near the parietal ridges. The brain weighed no more than 13 ounces. The convolutions were shallow and few in number. The cerebrum was wanting in development posteriorly, and did not overlap the cerebellum. The brain substance was softened and watery throughout. The ventricles were dilated with serum. The choroid plexuses were œdematous.

bellum $3\frac{1}{4}$ ounces; pons and medulla oblongata $\frac{1}{2}$ ounce. See General Report, No. 4, on Lunatic Asylums, Vaccination, and Dispensaries in the Bengal Presidency, for the year 1871, compiled by Assistant-Surgeon K. M'Leod, A.M., M.D. Calcutta, 1873, p. 25.

Dr. Stark¹ described a woman whose cranial capacity was 785 c. c., less than that of a child of one year old, which is 850 c. c. She could speak and do easy work. Besides lesions in the spinal cord, he found traces of chronic encephalitis with amyloid degeneration. Dr. Stark is inclined to think that many examples of microcephaly are not the consequence of a simple lack of development but of diseases of the cerebral tissue in intra-uterine life. He thinks that some of the idiots described by Vogt were of this character, and urges that a microscopic study of the brain should always be made.

Cases of this kind have the same relation to cases of genetous idiocy as the microcephale in whom the brain tissues are healthy bears to ordinary human beings. The one has a small diseased brain, the other a small healthy brain. In microcephales the palate is generally flat. In a few instances it has been noted to be vaulted, but I do not know whether this would help us to distinguish these two perplexing subdivisions.

Atavism.

Vogt believes microcephaly to be a case of atavism, the appearance of a type of brain inherited from some very remote ancestral ape. As an illustration, he gives the occasional appearance of the two supplemental toes in the horse, which, he thinks, indicates its descent from the hipparion, an extinct animal of the Pleiocene period, which had two shorter toes on each side of the hoof—somewhat like the posterior toes of the deer and ox. This, Vogt observes, disappears teratologically as an arrest of development, for in the embryo horse the representatives of the lateral toes appear, but only to be incorporated at an early date with the single row of metacarpal bones and phalanges. In the same way, the brain of the microcephalic idiot is the result of arrested develop-

¹ *Zeitschrift für Psychiatrie*, xxxi. Band, 5 Heft, 1874.

ment of a human brain checked in its evolution at the simian stage.

The observations of Gratiolet are far from confirming this theory. "The study of the brain of microcephales," he writes,¹ "has furnished me with other reasons for proving through anatomy the absolute distinction of man. On comparing attentively the brain of apes with that of men, I found the arrangement of the central convolutions to be in adult age the same in both groups. If one went no farther, there would not be sufficient grounds to separate man from animals in general, but the study of development gives us a real distinction. The temporo-sphenoidal convolutions appear first in the brain of the ape, and the frontal lobe last ; but exactly the opposite takes place with man—the frontal convolutions appear first, the temporo-sphenoidal last. Thus the same series is repeated in the one case from Alpha to Omega, in the other from Omega to Alpha.

"From this fact, which was rigorously verified, there flows a necessary inference : no arrest of development can make the human brain more nearly resembling that of the ape's than it is in the adult ; far from that, it will differ so much the more the less developed it is. This inference is completely justified by the view of the microcephalic brain. At first it might be taken for the brain of some new and unknown ape ; but the slightest attention is enough to save one from this error. In the ape the parallel fissure is long and deep, and the sphenoidal lobe is marked by complicated furrows. In the microcephale, on the other hand, the parallel fissure is always incomplete, and sometimes wanting, and the sphenoidal lobe is almost entirely smooth. That is not all : in the microcephale the second bridging convolution, between the

¹ "Mémoire sur la Microcéphalie considérée dans les Rapports avec la Question des Caractères du Genre Humain, par le Docteur Pierre Gratiolet ;" *Journal de la Physiologie de l'Homme et les Animaux*. Paris, 1860, p. 110.

parietal and occipital lobes, is always superficial, a character peculiar to man.¹ In the Pithecæ, on the contrary, the convolution is constantly hid under the operculum of the occipital lobe. Thus, in the depth of their degradation, the brain of the microcephale presents human characters often less voluminous and less convoluted than those of the ourang or chimpanzee ; they do not become similar. The microcephale, however low he may be, is not a beast, but a diminished man.

"I have examined the question, Does microcephaly precede birth? Of this there can be no doubt. In one of the cases of microcephaly which I have studied, the general form of the brain and of the fissure of Sylvius showed that the monstrosity was at least contemporary with the fifth month. It is probable that this state depends upon some cause : early under the influence of some primordial generative weakness (*astheniogenie primordiale*), forms are produced which differ from all normal states. Moreover, in the new-born child, in its normal condition, the arrangement of the cerebral convolutions is complete in all its parts. If microcephaly were after birth, these convolutions would remain, and the volume of the brain alone would be diminished ; but it is not so ; the growth has languished from the beginning, its fold is shortened, and has stopped growing too soon."

Gratiolet remarks that those microcephales in whom the convolutions are so little complicated, are all dwarfs.

In the microcephales the impressions of the senses are lively. They are fond of moving about, but have little power of continuous attention. Their restless motions recall those

¹ Professor Turner has shown that the views of Gratiolet on this point are not always in accordance with facts. See his "Notes on the Bridging Convolutions in the Brain of the Chimpanzee," from the *Proceedings of the Royal Society of Edinburgh*, 1865-66. Turner's observations were confirmed by observations made by Rolleston, Marshall, and Broca ; see "L'Ordre des Primates par Paul Broca :"
Bulletins de la Société d'Anthropologie de Paris. Tome quatrième, 1869, p. 389.

of the butterfly. It would appear that they are late in learning to walk ; but in general they have the free use of their limbs, which Gratiolet accounts for by the comparatively large development of the cerebellum.

If the brain be healthy, the prognosis is better than that of many cases where the brain, though of normal size, is the seat of chronic disease.

Vogt and other disciples of Darwin see in the mental characteristics of the microcephalic idiot something resembling those of the anthropoid ape. It seems to me that the intelligence of a monkey is very different from that of an idiot. You cannot reach the simian intellect merely by deducting so much from the human. It is different in kind as well as in degree. One might as well expect to find the same character of intelligence in an infant of two months old and in a full-grown chimpanzee, because the cranial contents were about the same. The mental powers which the monkey possesses are in perfect accordance with his organism. His agility in climbing and swinging himself from branch to branch is something marvellous. I have seen whole flocks of monkeys running down a wooded hillside with the greatest rapidity, without ever touching the ground, leaping from one branch to another, sometimes laying hold with the superior, sometimes with the inferior extremities, never tumbling, and scarcely ever missing their aim. This demands some kind of mental as well as physical powers, and cannot be clouded over by the vague word instinct. Monkeys, as every one knows, are extremely alert, watchful, and nimble ; very careful against wild animals ; they do not lie down to sleep, but sit upon trees all night ; their slumbers are very light ; they are attached to and careful of their young. On the contrary, microcephalic idiots, though in general more lively than those of other classes, have no fondness for climbing, and are as destitute of animal instincts as they are of human intelligence

They have no powers either of feeding or protecting themselves from danger, and if left to themselves would soon perish. They present the effaced lineaments of a human being, which only a wandering fancy will mistake for those of an ape. What qualities they have are of a human character. They laugh at what amuses them; they have human sympathies and human affections. Where they learn a few words, they use them as human beings do to signify things. Their tendency to imitation is often strong, and reminds a superficial observer of the monkey; yet imitation is also strong in the human being, especially in children. The resemblance between microcephales and apes seems to me to rest especially upon the negative quality of stupidity. The sexual manifestations of microcephales are feeble, there is no record of a microcephalic woman bearing a living child, and even if she did so, she could not bring it up.¹

It happens now and then that a microcephale has habits which remind one of some of the lower animals. Thus Lombroso describes a foundling, called Battista, 3½ years old, with a head of about 14 inches in circumference, who was restless, strong, and active, and extremely fond of leaping. He leapt with the spine bent, and the hands before him, like an ape, and went by the name of the Monkey (il Scimmiin). The gambols of this young person would be very pleasing to

¹ Giacomini's observations agree with the statements of Vogt, which he quotes: "Les organes génitaux se développent aussi lentement, il est vrai, mais suffisamment à la fin. Les femmes sont menstruées; mais la menstruation arrive tard. Quelques faits paraissent prouver que les appétits sexuels existent aussi chez les hommes arrivés à un certain âge. Malheureusement nous ne connaissons aucun examen plus approfondi, aidé du microscope, des organes sexuels mâles, mais quant aux femmes, il est certain qu'elles auraient été capables d'avoir de la progéniture." "E la conferma di ciò la troviamo nella struttura dell' ovaia della manolino, che si è presentata normale, e nella microcefala di Short, d'anni 25, la quale concepì, ma il feto nacque morto. Questa credo che sia la sola microcefala che abbia soddisfatto alle funzione della riproduzione." *Una microcefala osservazioni anatomiche ed Antropologiche del Dottore Carlo Giacomini, Torino, 1876, p. 79.*

Vogt, as he would of course consider them a confirmation of his theory. Yet we often see children that are fond of leaping, and given to imitation, without supposing that they could only have inherited such tastes from an ape which has been dead myriads of years ago.

But what are we to make of the microcephale yet to be described, who was called the Bird man (*l'uomo uccello*), from his imitation of the habits of a bird ; or another case, who was called the Rabbit-man (*l'uomo coniglio*), from the habit of moving the nose and lips, and from being timid and fond of green vegetables, such as salads and cabbage ? When he was frightened he used to stamp with his feet, as rabbits do. Lombroso also quotes a case mentioned by Maudsley, of a small-headed idiot, who resembled a goose in many things, and had the *cutis anserina* ; but even the most advanced Darwinians do not claim to be descended from geese or rabbits, still less from sheep, though Pinel has described another microcephale who affected the habits of that quadruped, among which is mentioned a dislike of flesh and wine.

Dr. Aeby¹ of Berne, who has with patient labour examined and measured every part of the frame of the microcephale, and compared it with that of the ape, Dr. Bischoff of Munich, whose dissection of the body of a microcephale, hereafter described, and Mr. John Marshall, have subjected Vogt's theory to a searching examination. If man, they argue, have a simian origin, it must have been from one of the lower monkeys ; certainly he is not descended from any of the existing anthropoid apes. The intermediate species, which must have been numerous, have disappeared. But if we have in the microcephale a reproduction of the brain of this Uraff, why cannot

¹ See "Beiträge zur Kenntniss der Mikrocephalie," von Prof. Dr. Chr. Aeby, in *Bern Archiv. für Anthropologie*. Sechster und Siebenter Band ; Brunswick, 1874-75 ; and a paper "On the Brain of a Bushwoman ; and on the Brains of Two Idiots of European Descent," by John Marshall, F.R.S., etc., in the *Philosophical Transactions of the Royal Society of London* for 1864.

we bring the brains of microcephales to one common type? Why do they not resemble one another, as the foot of the horse is said, in some rare cases, to resemble that of the hippa-
rion? The truth is, microcephalic brains neither resemble one another, nor the brains of any monkey, save in those common features in which the simian brain resembles the normal human one. As Dr. Aeby observes, it is precisely in the most important points that there is the greatest difference between the brain of the microcephale and that of the ape. For example, in the microcephale, the hemispheres are frequently asymmetrical; the corpus callosum is generally shortened, especially from the posterior end; in one instance, recorded by Dr. Cramer, the corpus callosum was entirely wanting, and the commissures deficient. The occipital lobes, too, are often arrested in growth, and the island of Reil left uncovered.

In the microcephalic brain we still see the human type with its folds and convolutions stopped in their growth, now here and now there struck by an arrest of development which we cannot clearly explain, but which is not a copy of the brain of any monkey that ever existed or indeed could have existed. The brains of microcephales have some characteristics peculiar to the human brain, "just as the toes," to use the illustration of Professor Owen, "as soon as they appear in the human embryo, characterise the foot, whilst they bud forth in the ape in the direction to form the human hand." Microcephaly comes into the domain of pathology, and occurs in the lower animals. Aeby has a preparation of a microcephalic calf, and as in the human microcephale the relative size of the occipital bone to that of the frontal bone is increased.

I am not aware that any anatomist who has examined a microcephale's brain has espoused the theory of Vogt. Lombroso, who has evidently no speculative objection to it, has signalised some anomalies which he found in nine cases of

microcephales, only four of whom, however, had very small heads.

The pithecoïd appearances noticed in these creatures were, down scattered over the forehead and body, the size of the ears, the elongation of the limbs and of the phalanges, the curving of the back in one case, and the leaping character of the walk in another. On a previous occasion, Lombroso has noted a microcephale in whom the forearm was elongated; and another, Gambardella, whose body was covered with black and shining hairs. None of the anomalies noted recurred with any constancy in these microcephales. Moreover, some of the peculiarities had no resemblance to any characteristic either of the ape or the negro; for example, the absence of the testicles in two cases, and the want of the incisors in another.

Lombroso remarks that the assertion of Vogt that microcephales have a pithecoïd skull on the crown, and human at the base and face, finds both contradictions and confirmations. "It is true that our microcephales have a retreating forehead, and that the arch of the cranium is more or less flattened; it is true that the development of the angular process of the frontal bone, the atrophy of the orbital surface of the floor of the cranium, the ethmoid beak of the cerebral lobes, the incomplete development of the occipital bone, the position of the occipital foramen more forwards than usual, and the direction of the coronal suture in Case 1; these are appearances truly pithecoïd. On the other hand, not only have we in these as, in other cases of microcephaly, the absence of the median crest of the pitheci, but even the curved temporal bones, so well pronounced in the black races, are wanting."

Dr. Chr. Aeby gives, as the results of his most careful examinations and measurements, that in the trunk and limbs microcephales present no difference from what is normal in man.

Causes Discussed.

In many cases the superior sutures of the cranium are closed. In three heads of microcephales dissected by Gratiolet the sutures at the base of the skull were behind the usual stage of development, while those above were closed; the inverse condition is often met with in cretins.

Baillarger¹ saw a woman in the Valais who had five children, the first two well formed, the other three microcephalic. She said that the microcephales were born without the soft space which is found on the head of all new-born children. He afterwards saw another woman who made the same statement of a microcephalic child then aged two years. Baillarger subsequently examined the skull of a microcephalic child whose head was no more than 35 centimètres = 13 inches 9 lines in circumference. In this child all the sutures had closed in save the lambdoid. He also cited a case of Vrolik of Amsterdam, where all the sutures were united in a microcephale aged seven years. Cruveilhier² mentions a child who lived eighteen months, in whom all the bones of the cranium were united without any sutures. The vertical diameter of the cranium in this child measured no more than an inch. It never gave, he adds, any sign of intelligence; its limbs were incessantly in motion; it expressed its wants by cries. Cruveilhier does not describe the appearance of the brain which must have been so small.

So many cases have been collected of microcephales with open sutures, that it is not likely any one³ will continue to

¹ See *Gazette Médicale de Paris*, 2 Aout, 1857, p. 482.

² *Anatomie Pathologique Générale*. Paris, 1856. Tome troisième, p. 164.

³ It seems to me that Vogt has misstated the views of Virchow when he says that the German pathologist holds that—"La microcéphalie doit être nécessairement combinée avec les synostoses prédominantes de la voûte crânienne" (p. 88). In reply to this, it is enough to quote Virchow's own words:—"Dass es Fälle von Mikrocephalie ohne Synostosen der oberflächlichen

hold that the small size of the brain is owing to the sutures closing in and thus hindering its growth. Even in those cases where the sutures have closed in before birth, the question still remains whether the brain ceased to grow because the sutures are closed, or whether the sutures closed in because the brain ceased to grow ; or, lastly, whether both the brain and its coverings ceased to grow under a common cause. It seems to me that if the sutures closed in and the brain continued to grow, the symptoms described as following hypertrophy of the brain would be produced, which, I think, is not the case.

It may be, and probably is, quite true that the principal increase in the capacity of the skull takes place at the sutures, as Virchow has pointed out ; but there is no proof that this is the only method by which it can increase. The skull, like other bones, undoubtedly can grow by deposit on the one side and absorption on the other, just as the medullary canal is formed in the long bones or the neural arch widens in the vertebræ. The different pieces which enclose the spinal cord are certainly formed into one bone from the third to the fifth year at the farthest ; but after this the cavity is increased by the simple process of absorption in the one side and deposition in the other. The skull does not limit the brain, nor does the brain extend or distend the skull, but both grow harmoniously together under the influence of a formative force inherent in the whole organism which suits the size of the skull to the size of the brain, as it moulds the limbs of either side to the same bulk and shape. It is possible that in disease this symmetrical working may be deranged ; the

Nähte gibt habe ich früher erwähnt."—*Untersuchungen über die Entwicklung des Schädel-Grundes*, von Rudoff Virchow. Berlin, 1857, S. 80-105. Rokitsansky, *Lehrbuch der Pathologischen Anatomie*, Zweiter Band. Wien, 1856, p. 433. Dr. Westphal in Proceedings of Berliner Medicinisch-Psychologische Gesellschaft, reported in *Archiv für Psychiatrie*, iv. Band, 1 Heft. Berlin, 1873, S. 261.

brain may increase too rapidly for the skull, or the closure of one suture may compel the brain to grow in another direction ; but one is no more bound to believe that microcephaly is caused by early closure of the sutures, than that hydrocephalus or hypertrophy of the brain is caused by retarded ossification.

Illustrative Cases.

Freddy.—The following case was noticed by me in my paper on the Classification and Prognosis of Idiocy. Amongst other things it was said there was nothing very peculiar about the form of the head. He was a healthy and well-made child, with good teeth and small hands and feet, but little for his age, which was eight years.



Fig. 4. Microcephalic Idiot.

He was quarrelsome and unmanageable, biting and kicking when angry. If his nurse pretended to cry when he struck her, he would appear sorry. She thought him the most intelligent child among eight idiots of about his own

age. If the other children struck him he would fly at them. He was imitative, but inclined to steal; when caught stealing, he seemed ashamed and turned red.

A more careful description was given by Dr. G. E. Shuttleworth, Medical Superintendent of the Royal Albert Asylum, Lancaster, in a paper at the meeting of the British Medical Association, in August 1875.

"Frederick ——— is now eleven years of age, and has been under my observation in the Royal Albert Asylum during the last four years. He is a well-knit, straight-limbed boy, $46\frac{1}{2}$ inches high, weighing 47 lbs; and, in spite of the peculiar conformation of his head, has a fairly intelligent expression, with large lustrous eyes. The following are his head measurements as given in Bucknill and Tuke, upon the authority of Dr. Ireland's observation in 1871, and also as recently taken by myself:—

	1871.	1875.	Dif.
Circumference	$14\frac{1}{8}$ in.	$14\frac{1}{2}$ in.	$\frac{3}{8}$ in.
From root of nose to spine of occiput (tape)	$7\frac{7}{8}$	$8\frac{1}{2}$	$\frac{3}{8}$
Ditto, calliper measure		$4\frac{1}{2}$	
From ear to ear over vertex (tape)	$9\frac{7}{8}$	10	$\frac{1}{8}$
Ditto, calliper measure		$3\frac{3}{4}$	
From ear to middle of forehead	$4\frac{1}{4}$	$4\frac{1}{4}$	
From ear to middle of occiput	4	$4\frac{1}{4}$	$\frac{1}{4}$

The two measurements made, as I believe, by comparable methods, would seem to show that the increase in the size of the cranium during the last four years depends upon development in the occipital and parietal regions, rather than in the frontal. There is nothing distinctively pithecoïd in the aspect or conformation of this boy's face or skull. Though his forehead recedes, there is no great flattening of the arch of the cranium; the skull is simply on a small scale. The profile, indeed, has somewhat of a bird-like aspect, and, it is remarked, bears strong resemblance to that of the so-called Aztec children exhibited in this country, some twenty years ago.

His temper has much improved by his training in the Royal Albert Institution. As a result, no doubt, of discipline, he is now well conducted and fairly sociable. Though unable to articulate clearly, more than a few monosyllabic words, such as 'look,' 'come,' 'see,' etc. (which he uses appropriately), he has evidently a fair degree of understanding. Nothing appears to escape his notice, and, on my morning round, he is in the habit of persistently directing my attention to any new thing (such as a fresh toy or some change of clothing) which has fallen under his observation since he last saw me. At school he tries to imitate writing on a slate, to match colours, and to join in the drilling exercises of the children. That he is able to carry on a train of reasoning, may, I think, be deduced from the following incident:—A few Sundays ago, having been kicked by one of his companions when walking in the grounds of the asylum, two hundred yards from the house, he left the nurse and children, and ran as fast as he could to the room in which I am in the habit of seeing patients; and ejaculating 'Look, look!' would not rest till I had examined his leg, and accompanied him to investigate the circumstances of his injury."

The New York Idiot.

Dr. Wilbur, in his Report of the New York State Idiot Asylum for 1857, speaks of a boy twelve years old, rather small of his age; his head is smaller than any whose dimensions I have seen recorded; the greatest circumference of his cranium is only $13\frac{1}{4}$ inches. "He was not cleanly in his habits, had but little idea of language, was passionate, could not speak at all; he has now been under instruction a year; he can distinguish a variety of forms and colours; he knows the name of all objects in the schoolroom and about the house, and also the names of all the pupils in school; he recognises a great

number of pictures of objects ; he is beginning to speak, and has already learned several printed words as the representatives of familiar objects ; he is now making sensible progress every day."

In the Eleventh Annual Report for 1862 there is an account of the further progress of the same pupil "A boy whose head was exceedingly small—in fact, smaller than any on record, except those of the Aztec children. He was in the asylum for five years, improving in many respects, but the extent of his further progress was so limited that he was dismissed."

The heads of the Aztecs were amongst the smallest known. These were two children who were exhibited in America, England, and France, about twenty years ago, with a trumped-up story about their origin. The following description is taken from Dr. Dalton's Treatise on Human Physiology :—

"They were boy and girl aged respectively about seven and five years. The boy was 2 feet $9\frac{3}{4}$ inches high, and weighed a little over 20 pounds ; the girl was 2 feet $5\frac{1}{2}$ inches high, and weighed 17 pounds. Their bodies were tolerably well proportioned, but the cranial cavities were extremely small. The antero-posterior diameter of the boy's head was only $4\frac{1}{2}$ inches ; the transverse diameter less than 4 inches. The antero-posterior diameter of the girl's head was $4\frac{1}{3}$ inches ; the transverse diameter only $3\frac{3}{4}$ inches.

"The habits of these children, so far as regards feeding and taking care of themselves, are those of children two or three years of age. They were incapable of learning to talk, and could only repeat a few isolated words. Notwithstanding, however, the extremely limited range of their intellectual powers, these children were remarkably vivacious and excitable. While awake, they were in almost constant motion ; and any new object or toy presented to them immediately attracted their attention, and evidently awakened a lively

curiosity. They were, accordingly, easily influenced by proper management, and understood readily the meaning of those who addressed them, so far as this meaning could be conveyed by gesticulation and the tone of the voice."

Seguin,¹ who saw the Aztecs in America, thought them susceptible of a certain amount of education. "He considered them capable of being elevated from the level of the monkey to that of obedient, sensible, and happy children. This prospect, frankly laid out, did not seem to please their keeper, either because he did not seem to believe it possible, or because he feared it would have diminished the chances of his success."

The following account of these idiots is given by Professor Owen :—

"The 'Aztecs' showed lively but abrupt movements, without obvious aim; the features showed movements devoid of intelligible expression, but with the general actions indicative of internal pleasure or gaiety. When I visited the children in their beds early in the morning, a week after my first inspection of them, they recognised me; I had examined their teeth in the first instance, and the boy pulled down his lip to show them to me on the second visit. I do not feel justified, however, from this evidence of their recalling an individual to mind, in ascribing to them a good memory. They were fond of beating a little drum and jingling a tambourine. They spoke a few words of English and more of Spanish, but seemed incapable of framing a definite proposition; they were pleased with, and attracted by, any bright object or toy. They had no sense or instinct of shame. The size of the cranium in the female indicated a brain arrested at the stage of that of the Hottentot Venus, figured by M. Gratiolet.² The Aztecs were stupidly docile; doing what

¹ *Idiocy*. New York : 1866, p. 343.

² Professor Owen said he had seen the skeleton of this woman in the Paris

they were bidden, but not in an intelligent way. Mr. Gore states, in reference to the woman with the still smaller brain, 'Her manners were exactly those of a *very* young child. She could say a few words, and was obedient and affectionate to those about her.'

The Bird Man.

The following account has been already published by me in a "Report upon Some Cases of Microcephalic Idiocy and Cretinism," which appeared in the *Edinburgh Medical Journal* for August, September, and October 1875, taken from two articles by Professor Cesare Lombroso, entitled "Clinical and Anthropometrical Studies upon Microcephaly and Cretinism, with their Application to Legal Medicine," in the *Rivista Clinica di Bologna* (Fasc. 7 Luglio 1873, and Fasc. 11 Novembre 1873).

Lombroso's first case died twelve years ago in the Hospital of Cremona. He was rather tall, and his limbs were well proportioned; but there was atrophy of the testicles, and the beard was wanting at the age of 25. The head was smaller than that of an infant. From some of his habits he was called the bird-man (*l'uomo uccello*). He chirped, he leaped

Museum, and, having compared it with those of other Hottentots, was convinced of this being a case of arrested development. See the discussion on the reading of Mr. Gore's paper on a case of microcephaly in the *Anthropological Review*, vol. i. London, 1863: pp. 168-189. Broca reproduces Gratiolet's drawing of the brain of the Hottentot Venus, and compares it with the brain of a young chimpanzee, the most complicated of the kind observed; but the brain of the Hottentot woman is unmistakably of the human type, and much more complicated than that of the ape. See *Bulletins de la Société d'Anthropologie de Paris*. Tome quatrième, Année 1869, p. 390.

The French anatomists seem to be generally of opinion that this woman was not an idiot, and this is confirmed by Mr. Marshall, who dissected the brain of another Bushwoman, and found the convolutions very simple, and of the same infantile type as the Hottentot; hence he concludes, that "whilst undoubtedly both brains show an infantile or fetal leaning, this is to be attributed partly perhaps to sex, but, in the main, to the characterisation of the race itself."

on one leg, and before putting himself in motion he stretched out his two arms like wings. He used to hide his head under his armpit, and chirped strongly when frightened, or at the sight of a stranger.

He was said to be wanting in touch, taste, and smell, was dirty in his habits, and given to coprophagy. The head was less than that of the ourang-outang or gorilla,¹ having a circumference of 380 millimetres = 15 inches, and a capacity of 390 grammes. The form was also anomalous. It was oxycephalic, broad at the base, and tapering at the crown, resembling a pyramid, with its vertex corresponding to the middle of the sagittal suture. If a line were drawn from the most salient point of the forehead to cross another thrown out from the fronto-zygomatic suture, it had an angle of 135°, whilst in the average European, the angle is about 160°.

The angular processes of the frontal bone were very prominent. The frontal bones themselves were thick, and had a few digitations. The meatus auditorius externus was twice as far forward as in the normal skull. The glenoid fossæ were more converging behind, and less so in front. The carotid foramina were smaller than usual; the molar teeth obliquely inserted instead of vertically. The occipital foramen was carried backwards, and, as noted by Vogt, in his observations

¹ The capacity of the ourang-outang is 448 c.c. for males, 378 for females.

„	of the gorilla	„ 500	„ 423	„
„	of the chimpanzee	„ 417	„ 370	„
„	of man-child at birth	„ 400	„ 360	„
„	of a male 1 month	„ 460	„ 420	„
„	of a male 1 year	„ 900	„ 850	„

(Vogt, *Memoires sur les Microcephales*. Geneva, 1867.) But our Giglioli, in his admirable monograph upon the chimpanzee brought by Doria and Beccari, describes a *maias ciapping*, a variety of ourang, with a cranium of 503 cub. cent., and another of 456 c.c. (*Studi Craniologici*. Genoa, 1872). The cranium of an adult microcephale, studied with singular diligence and zeal by Dr. Roberti, had a capacity of 370 c.c., a circumference of 332 = 12 inches 7 lines. That studied so learnedly by Valenti had a circumference of 350 mil., equal to 13 inches 9 lines, and the brain weighed 232 grammes.

on *Microcephales*, in the *sardus pithecus* and in the *sardus Romanus*, the distance from the occipital foramen to the alveolar margin stood as 100 in the first, 95 in the second, and in our *microcephale* at 92, which is no great difference ; but, if we compare the distance of the posterior margin of the foramen to the most salient point of the occiput, we find it 40 in the *sardus pithecus*, 60 in the *Romanus*, and 90 in the *microcephale* ; and whilst, as a rule, in man, the length of the base of the cranium is equal to the longitudinal diameter, in our case the difference is from 160 to 140. Tried by the cephalo-orbital index of Mantegazza, this case comes behind the grown-up *ourang-outang*, and still farther behind the young *ourang*, and at a distance from man as 8 is from 27. All the sutures were open, even the spheno-basilar one, which was found closed in the skull of the grown-up *microcephale* studied by Vogt and Mantegazza. This still further weakens the theory of Virchow, who gives so much importance to the closing of the sutures in the production of *microcephaly*.

I cannot clearly follow the description of the brain, which is much less complete than that of the skull. The frontal lobe looked at in profile seemed to have an irregular margin, and towards the middle line descended with a cleft wide enough to admit two fingers between it and the floor of the skull. The supraciliary lobule is simple, and has no trace of the fissure of Sylvius. The orbital lobe has two gyri on the left side, and three on the right. The posterior lobe is more developed on the right than on the left side, but small on both.

The cerebellum, more developed than usual, was assuredly not covered in any part by the cerebrum, thus losing a character which is not only common to European, but to the human race.

	Metres.	Inches.	Lines.
Bodily height	1·540	= 60	7
External circumference of cranium	0·380	= 15	0
Internal circumference of cranium	0·350	= 13	9
External longitudinal diameter	0·140	= 5	6

Lombroso gives 55 measurements, some of which are reproduced.

	Metres.	Inches.	Lines.
Internal longitudinal diameter	0·120 =	4	9
External transverse diameter	0·113 =	4	5
Internal transverse diameter	0·100 =	4	0
Distance of anterior margin of occipital foramen to alveolar margin	0·092 =	3	7
Distance of posterior margin of occipital foramen to most prominent point of occiput	0·030 =	1	2
Distance of the anterior margin of the occipital foramen to the alveolar margin	0·092 =	3	7
Distance of posterior margin of occipital foramen to most prominent point of occiput	0·030 =	1	2
Distance of the auditory foramen to the frontal nasal suture	0·092 =	3	7
Distance of do. to the external occipital protuberance	0·082 =	3	3
Cranial capacity	0·390		
Facial angle	65°		

The Brothers Cerretti.

The next three cases were brothers named Cerretti. The father was a rather tall man, of a scrofulous constitution; the teeth and ears ill formed, and the occiput flattened. The mother, delicate and stupid, had the appearance of a cretin, and suffered from continual headache. One of their cousins was insane, and some had been condemned for homicide. They had eight sons, one only of whom was intelligent; the other seven were all idiots, and four of them died from cerebral diseases. The neighbours thought the cause of so many sons being idiots was that the mother kept a monkey. The three microcephales have all a retreating forehead covered in part with down, with an enormous fronto-orbital angle, an obtuse facial angle, and a small oxycephalic head.

The eldest, Nicola, now 24 years of age, is rather tall, with enormous ears. The arms are long, owing to the disproportionate length of the forearm. He has no beard, and seems little sensible to electricity. Begging is his occupation,

which he does in a persevering manner ; but he could never learn to work. He is tolerably good-natured ; but has very weak intelligence, though not without a certain amount of cunning. He exercises over his brothers a species of guardianship ; but more for his own advantage than for theirs. He has absolutely nothing resembling the ape about him, save that he stoops in walking like a tamed monkey. Serafino, the second brother, is about 13. He has the superior canines more developed than normal, and distant from the incisors. Of a malicious disposition, he beats without mercy his little brother, to rob him of his bread and money, and only obeys the bigger brother, grinding his teeth. Giovanni is 10 years old. He has an osseous elevation along the sagittal suture. The forehead is covered with hair, or rather down. The upper incisors are larger than usual, and two of the under ones are wanting. The canines are isolated and pointed. He is strong and much more vivacious than the rest ; rolls the eyes quickly like a monkey, touches everything with the hand, and imitates gestures. He has learned to sew and to do little messages. Lombroso could find in none of the three that the sense of taste was normal. They said that *assafœtida* was good, and musk bad. The little one liked quinine, the others did not. "It was curious," says the author, "to see them going together ; the biggest one with his head bent on his breast and his long arms almost touching the ground, thrashing the others if they did not follow him, but letting Serafino beat Giovanni when he wished to keep what he got in alms." They bring the bread or money, which they get, home, but do not give it willingly up to their parents. In winter, having only one coverlet, they fight to have a larger share. Sometimes they wander about four or five days without returning home.

The accompanying Table of Measurements of these microcephalic idiots is reproduced, without any curtailment:—

		CERRETTI.											
		NICOLA.				SERAFINO.				GIOVANNI.			
		Age 21				Age 13				Age. 10			
Height		Metres.		Inches.		Metres.		Inches.		Metres.		Inches.	
		1·65 = 65				1·35 = 53				1·17 = 46			
Weight		Kilogrammes. 56·500				Kilogrammes. 34·00				Kilogrammes. 24·00			
Fore-head.	Circumference	Mill.		About in. ls.		Mill.		About in. ls.		Mill.		About in. ls.	
		450 = 17	8	420 = 16	6	410 = 16	2						
Fore-head.	Antero-posterior	240 = 9	5	260 = 10	3	250 = 9	10						
		220 = 8	8	210 = 8	2	220 = 8	8						
Fore-head.	Biauricular	100 = 4	0	150 = 5	11	150 = 5	11						
		200 = 7	11	300 = 11	10	200 = 7	11						
Fore-head.	Height	148 = 5	9	145 = 5	9	140 = 5	6						
		122 = 4	9	120 = 4	8	110 = 4	3						
Fore-head.	Longitudinal	120 = 4	8	110 = 4	3	100 = 4	8						
		130 = 5	2	103 = 4	0	98 = 3	9						
Fore-head.	Transverse	157 = 6	2	162 = 6	4	130 = 5	2						
		200 = 7	11	186 = 7	3	175 = 6	10						
Fore-head.	Bimastoid	60 = 2	4	48 = 1	9	54 = 2	2						
		34 = 1	3	30 = 1	2	30 = 1	2						
Fore-head.	Bizygomatic	330 = 13		300 = 11	9	210 = 8	2						
		380 = 15		230 = 9	1	165 = 6	6						
Fore-head.	Fronto-mental	190 = 7	6	180 = 7	2	111 = 4	4						
		510 = 20	1	370 = 14	7	290 = 11	4						
Fore-head.	Occipito-mental	410 = 16		335 = 13	9	240 = 9	4						
		265 = 10	2	230 = 9	1	200 = 7	11						
Fore-head.	Length	320 = 12	6	250 = 9	10	210 = 8	3						
Fore-head.	Breadth												
Fore-head.	Length of arm												
Fore-head.	" forearm												
Fore-head.	" hands												
Fore-head.	" thigh												
Fore-head.	" leg below the knee												
Fore-head.	" foot												
Fore-head.	" calf												
Distance of auditory meatus to the chin		170 = 6		8		130 = 5		2		140 = 5		6	
Distance of do. to bregma		160 = 6		4		150 = 5		11		145 = 5		9	
Distance to root of nose		140 = 5		6		110 = 4		3		105 = 4		1	
Distance of the nasal septum from the alveolar margin		20 = 0		9		25 = 1		0		15 = 0		5	
Fronto-orbital angle		115°				122°				100°			
Facial angle		68°				70°				72°			
Force of fist		88				43				40			

Antonia Grandoni.

The most singular of all the cases of microcephaly is without doubt that of Antonia Grandoni. An account of her was given by Professor Cardona¹ from which the accompanying portrait is taken. She was born in 1830. She has always had good health; she has her regular periods; "eats, drinks,

¹ *D'una Microcefala*, per Filippo Cardona. Milano, 1870.

and sleeps regularly, and shows attachment to those who are kind to her. She has good sight and good hearing, attends to what is said to her, and gives satisfactory answers; she sometimes smiles, but more to do like those around than for hilarity. She sets herself to work like any other girl."

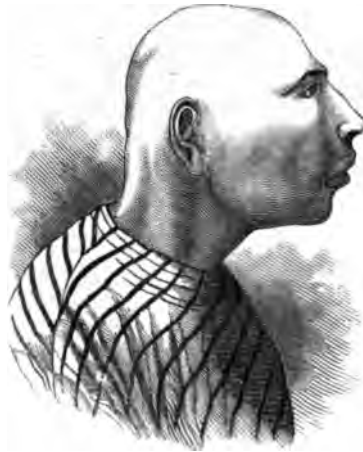


Fig. 5. Antonia Grandoni.

She weighed about 66 pounds, and was 22 inches round the waist, and 30 inches round the pelvis. Her hair being thin and short, the following measurements could be taken with some exactness :—

	Mill.	Inches.	Lines.
Facial angle	200 =	7	10
Length of the face from the eyebrows to the chin	110 =	4	4
Distance between the zygomatic arches	120 =	4	9
Fronto-occipital	200 =	7	10
Biparietal	200 =	7	10
External circumference	380 =	15	0
Antero-posterior	135 =	5	4
Transverse	105 =	4	2
Line from the sinciput to the base of skull	150 =	6	0

The author gave the measurement of another microcephale called Cioccio :—

	Mill.	Inches.	Lines.
External circumference . . .	340	= 13	4
Antero-posterior diameter . . .	108	= 4	3
Biparietal	98	= 3	10
Line from the sinciput to the base . . .	92	= 3	8



Fig. 6. Antonia Grandoni.

It should be remembered that in the case of Cioccio the examination was made upon the naked bone, whereas in Grandoni the measurements were taken with all the integuments of a living head, and, as seen in the sequel, Grandoni's brain was actually smaller than Cioccio's; but, observes Cardona, "the smallness of the brain of Cioccio induced stupidity, idiocy, deaf muteness—in short, simply animal life; the poverty of the brain of our Grandoni in that small size accorded to it by nature, could admit of a sensibility, an intelligence, and an education, which has not fallen much short of the average of her countrywomen."

Antonia Grandoni died February 1872, aged 41, of pyæmia; the examination of her body was made by five medical men, and the description of Dr. Roberto Adriani occupies twenty pages of the *Sperimentale*.¹ Her father was a boatman; her

¹ *Lo Sperimentale, Giornale Critico di Medicina e Chirurgia. Firenze, 1872, Ottobre.*

mother was a woman of small stature, who died of consumption. Before and after giving birth to Antonia she had several children, male and female, who were quite healthy in every respect. There was nothing in the family history indicating any unusual morbid tendency. Antonia was small at birth, with a small head. The fontanelles were noticed to be distinct, but were thought to contract sooner than usual, and eclamptic convulsions followed. The head, which had increased at first, soon stopped growing, and the disproportion between the size of the head and the face became marked. She was not much later than usual in beginning to walk and speak, but her intelligence was inferior to children of her age. She, however, learned in time to do easy work in the house, and to go out of doors to buy provisions. She was fond of learning amorous poetry, and showed erotic tendencies. On getting older she took to wandering about, and might be seen dancing with grotesque movements to her own singing.

For many years she led a wandering life, an object of curiosity, of pity, or of ridicule to all. At last she was removed to the hospital where she died. There was nothing peculiar about her person saving the smallness of her stature, she being no higher than 52 inches. Cardona says, 125 c. = 49 inches 3 lines. Her weight was 30 kilogrammes. She had good sight, very quick hearing, an exquisite sense of taste and smell, and the sensibility of the skin was normal on both sides. The walk was slow and hesitating; but she was a good and agile dancer. She was gay and sociable in her disposition, and never complained, except for bodily pain; but the idea of death disturbed her. She was always quiet and obedient, and when hindered doing anything, she showed grief, but no resentment. She felt for the sufferings of others. She knew that her head was small, and an object of attention. She was very careful in her dress, and was

fond of attracting the notice of the other sex. She remembered those who were kind to her, was glad to see them, and would go in search of them when they did not appear. When visitors came to the hospital she desired to be noticed, and was disappointed if she were neglected. She was fond of talking about marriage ; liked singing and dancing ; could play well upon the cymbals, and was anxious to get her companions to dance to them. She showed a good memory for names of persons and things, remembered places and bygone events ; but had no memory of time. She answered questions satisfactorily, adding information without being asked. She had the sentiment of good and evil, and made sensible remarks upon the conduct of her companions. She was religious through imitation and habit, and behaved well in church. Every attempt to instruct her was without success.

It appears from this account, which I have almost literally translated, that Antonia's imbecility was more decided than one would think from the shorter account of Professor Cardona. The description of her mental powers might yet be more complete ; one would especially like to know what knowledge she had of numbers, and what was the nature of the attempts at instruction which failed. I have little doubt that, by a well-planned education in childhood, her mental powers could have been considerably increased, and her wandering and erotic tendencies repressed. Apparently she was a poor neglected creature ; but, even at the worst, her mental powers appear very extraordinary, if compared with the smallness of the brain. The whole body seemed to have been examined, but no anomalies were noted, save that the pelvis was somewhat narrow, and the coccyx turned to one side. A large number of measurements of the head are given, some of which we reproduce.

Cranio-Facial Measurements.

	Millimetres.	Inches.	Lines.
External circumference	332	= 13	0
Internal circumference	303	= 11	10
External longitudinal diameter	117	= 4	7
Internal do. do.	105	= 4	2
Distance from the anterior margin of the occipital foramen to the alveolar margin	90	= 3	7
Length of palate	47	= 1	9
Breadth „	30	= 1	3
Breadth of orbits	30	= 1	3
Height „	30	= 1	3
Cranial capacity	370	c.c.	
Cephalic index	75		
Cephalo-orbital index	10.27		

An engraving of the craniographic profile of Broca is given in the *Sperimentale*. The frontal angle is only diminished by 4°; the parietal angle by 29°. The occipital angle is, on the contrary, increased by 9°, so that the total diminution of the cerebral angle is reduced to 24°.

All the sutures were found closed, and taking this in connection with the eclamptic fits, Dr. Adriani views this premature closure as the cause of the microcephaly; but much could be said against this explanation, which cannot hold good in many cases.

Amongst all the contents of the cranium, the hemispheres were the least developed. The pons, the medulla oblongata, the tubercula quadrigemina, the peduncles, and the cerebellum fell much less below the ordinary dimensions. The greatest breadth of the brain at the middle was 85 millimetres, and 68 millimetres at the base of the anterior lobes. The cerebral hemispheres were perfectly symmetrical; they were 100 millimetres in length, and were shortened posteriorly, so that the cerebellum was left uncovered for about 70 millimetres. The fissures of Sylvius and of Rolando were well marked. All the cerebral lobes were small; the parietal and occipital were smaller in proportion to the frontal and temporal lobes.

The sphenoidal and the anterior and posterior central convolutions were also proportionally well developed. The convolutions of the frontal and temporal lobes were more complicated and better developed and more numerous than those of the parietal and occipital. The most notable anomaly of the brain was a shortening and slight thinning of the corpus callosum. The dura mater was thicker than usual, and the gray substance appeared to the naked eye in relatively greater quantity. The microscopic examination of the brain, very carefully made by Dr. Luigi Severini of Perugia, gave the following results :—

I. No remarkable difference was found in the structure or proportion of the nervous corpuscles, either in slices taken from the posterior parts of the cerebrum where the development appeared arrested, or from the anterior parts.

II. There was a remarkable abundance of fundamental tissue, especially in the cortical matter of the brain, which made the nerve-cells appear scarcer than usual. This tissue, which was thought the same as the neuroglia of Virchow, is described as being turbid, through the small points of obscure molecules uniformly diffused, and taking on a faint colour through imbibition. After prolonged maceration in a weak solution of acetic acid, and separation with needles, this fundamental tissue, viewed with high powers, appeared to be composed of cells with very small nuclei, many of which had very fine processes, so as to resemble the appearance of the cells of the conjunctiva.

III. The prevailing form of nerve-cell in all the slices examined was the triangular one, with an oval or round nucleus. Few displayed the pyramidal form.

IV. The structure of the bloodvessels appeared normal, if anything they were somewhat larger than usual ; and the perivascular lymphatic spaces were very clearly seen.

The whole encephalon weighed 289 grammes ; the cerebrum 238 grammes ; the cerebellum, pons varolii, and

medulla oblongata, 51 grammes. Thus, the weight of the brain did not correspond with the cranial capacity. This agrees with the observations of Waisback, who found that the weight of the brain and the capacity of the skull do not keep a parallel relation, and increase by a different percentage. On the other hand, it helps to show the fallacy of the mathematical formula of the anthropologist Davis, made to determine the weight of the brain from the cranial capacity, calculating the appendages of the brain as $\frac{14}{100}$, and the cerebral mass as $\frac{86}{100}$, and its specific weight as 1.40. The absolute weight of the encephalon ought in this case to have been much greater.

The measurement of the convex surface of the brain gave an approximate extension of 1131 square millimetres. This confirms the observations of Wagner, who found that the diminution of weight did not correspond with the diminution of the surface of the brain. As Dr. Adriani truly remarks, this case is unique, if we consider the extreme smallness of the cranium, the small weight of the brain, the advanced nervous organisation, and the evolution of the intelligence. Passing over his comparison of the external measurements, we find that, among the cases published, Wagner had one whose brain weighed 300 grammes; Griesinger, one of 576 grammes; Theile, of 294 grammes; Gore, of 283 grammes; Marshall, of 238 grammes in a male idiot ten years old. Gaddi, Bastianelli, and Lombroso have given cases where the weight of the brain was between 300 and 400 grammes.

In none of these did the intelligence approach that of Grandoni; indeed, in all these instances the mental power was of the lowest.

To bring the matter to a closer comparison, let us take the following instances of brains whose weight approached near to that of Grandoni's. The case reported by Gore¹

¹ *Anthropological Review*, vol. i. No. 1. 1863, p. 168.

weighed only 6 grammes less. She died in her forty-second year. Her height was about 5 feet. She could walk, but with an unsteady and tottering gait, and could only say a few words without any connection, and though her habits were decent and cleanly she was never able to feed herself.

Dr. Mierzejewsky¹ showed to the Medico-Psychological Society of Berlin, the brain of an idiot called Mottey, who died at the age of 50 years. His height was 60½ inches, and his weight was 92 kilogrammes. The circumference of the head was 49 centimetres, the antero posterior measurement 23 c. The sense of taste and smell were somewhat deficient, the other senses good. He was very apathetic. He spoke a few words of one syllable, and never asked for food, nor seemed put out when it was not brought. The brain weighed 369 grammes, standing in relation to the body as 1250, but the pons and cerebellum nearly approached the normal size. The corpus callosum was three times shorter than usual in proportion to the hemispheres. Nothing abnormal was discovered in a careful microscopic examination of the brain. The pyramids and the medulla were somewhat smaller than usual.

The appearance of the convolutions resembled that of a foetus in the ninth month, but the brain was larger in volume. Mottey had the intelligence of a child of eighteen months, though the weight and volume of his brain, and the complexity of the convolutions were considerably less; he had, of course, more experience, and it is likely enough, that a child whose cerebral development stood still from eighteen months old, would have learned more had he lived till fifty.

Frederick Sohn² had an elder brother who was also microcephalic, and less intelligent than himself. Frederick died at the age of 18. He could use a few sounds like

¹ *Archiv für Psychiatric*, iv. Band, 1 Heft, p. 258.

² There is an account of the two brothers in Vogt, *Sur les Microcephales*, p. 13.

words, could eat his food with a knife and fork, and could fetch some common article in the room, when so directed by his mother. This seems the sum total of his accomplishments. His principal bad quality was tearing his clothes. The weight of his brain was 452 grammes, that is 136 grammes more than Grandoni's.

It is needless to observe that Antonia Grandoni was incomparably superior to these three idiots in intellect.

Any one who compares the cranial capacity of a few microcephalic idiots with the intellectual manifestations, will hardly fail to notice that the one does not bear any definite proportion to the other. The cerebral substance must sometimes be inferior in quality as in quantity. In some cases the brain-tissue is healthy, or nearly so; in others it is not. This is a perplexing consideration when we come to study microcephaly, but it is one which cannot be overlooked. Dr. Adriani is disposed to think that the brain-tissue of Grandoni was healthy; and he is perhaps right in laying little stress upon what was seen through the microscope, the scarceness of the nerve-cells in proportion to the neuroglia or fundamental tissue; for the import of such appearances is not yet clearly understood.

"It does not require," he observes, "a close examination to find the principal characteristics which distinguish the convolutions of man from those of the ape. In the brain of our microcephale, we do not find the perpendicular fissure which divides the brain of the anthropoid ape into anterior and posterior parts. The inferior surface of the frontal lobe is flat, and the convolutions in their division, volume, contour, and disposition have the form of the human type. An examination of the brain strengthens the conclusion that microcephales do not represent a degeneration in the sense of retrogression to the organic type of certain apes, but rather an arrest of development without aberration from the typical

laws of organic formation through a pathological cause." Dr. Adriani shows that other observers have found that diminution of the posterior cerebral lobes, and a shortening and thinning of the corpus callosum, are the most constant characteristics of the brain of microcephalic idiots.

He remarks that the defective development of the occipital and parietal lobes did not in this case appear to affect the intelligence, and quotes a case from Griesinger where there was a moderate and symmetrical diminution of the size of the posterior lobes, so that the cerebellum was in part uncovered ; but the young man, far from being an idiot, was endowed with unusual intelligence. In more ways than one does this singular case perplex previously-conceived theories on the functions of the brain.

Helene Becker.

The most careful anatomical description which we have of a microcephale is by Dr. Th. L. W. Bischoff¹ of Munich. The subject was a girl called Helene Becker, who had, when alive, been examined by many German anatomists and physiologists. She was the third child, and the sixth child was also a microcephale. Helene Becker had always a very low grade of intelligence. She knew her own name ; but otherwise paid very little attention to what people said to her. She could only speak one word ; but used two sounds, a guttural like Eng and a nasal like A as signs of pleasure. Her cries were highly expressive of pain or anger. She liked to be fondled, and knew when people were angry with her, when she began to cry and became angry ; but it was impossible to influence her conduct in any way, and she made no difference between those of her own family and strangers. She distinguished colours and liked bright ones. She was blind of the right eye, apparently from inflammation in early life.

¹ Anatomische Beschreibung eines Mikrocephalen 8 jährigen Mädchens. Munich, 1873.

The other senses were natural. She never showed any desire for food or drink even when placed before her, and never fed herself, although she relished tasty dishes, and evidently enjoyed different kinds of food and drink. She was very unquiet, always moving her hands and arms and the upper part of her body; but she never executed any regulated movements except sometimes seizing bright objects and raising them to her mouth. She was always delicate, with a weak pulse, low temperature, and cold hands and feet.

About the sixth year she was affected with rickets and died of a vomica in the lung, at the age of eight years. Her body, which was much wasted, only weighed 7400 grammes. Its length was 782 centimetres.

Dr. Bischoff made a careful dissection of the whole body, along with those of two other children of about the same age. The brain only weighed 219 grammes = 7 oz. and 360 grains, and by being kept a fortnight in spirits lost much of its weight, showing that it contained a large proportion of water. With the exception of the brain described by Dr. Sander, which weighed 170 grammes = about 6 oz., it is the lightest human brain on record.

The brain of a girl of eight who died of phthisis, and whose body was dissected along with that of Helene Becker, weighed 1063 grammes; that of a boy of seven years weighed 1365 grammes. The weight of the cerebellum, pons, and medulla stood to the cerebrum as 1 to 3, *i.e.* 25 per cent. In a four year old chimpanzee it was 21 per cent; in an ourang 20 per cent; and in a *hylobates leuciscus* 25 per cent.

No trace of diseased action could be detected in the brain tissue. The convolutions were extremely simple, as may be seen from the accompanying woodcut. But the typical sulci and convolutions could be readily found. The frontal gyri were small, and tapering towards the middle, the temporal gyri were larger. The fissure of Rolando was quite different

on the right hemisphere from the left ; indeed it could not be well made out at all on the right side. Bischoff describes the third frontal convolution as almost wanting, though Dr. Aeby is disposed to question this view. The occipital lobes were small.

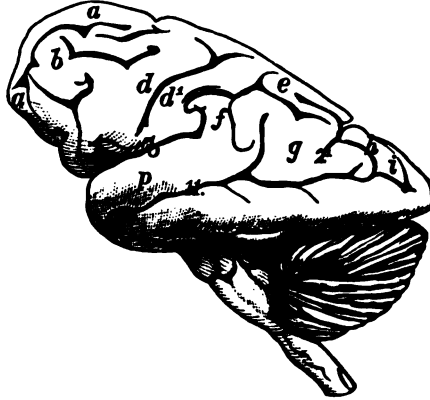


Fig. 7.

Brain of microcephale, Helene Becker.¹ Side (left) view.

The corpus callosum was short in relation to the hemispheres, as in the new-born child. The septum lucidum was wanting. The head was not quite symmetrical, the right side being fuller than the left ; all the sutures were open save the sagittal and squamous. This closure of the sagittal sutures, as Giacomini has observed, is frequently met with in microcephales. Marks of rickets were found in the whole skeleton. There is a careful description of all the peculiarities seen in the muscles. These were especially noticed in the

¹ The central fissure (of Rolando) runs between *d* and *d*¹.

2¹. The unfinished fissura occipitalis perpendicularis externa.

6. Posterior branch of Sylvian fissure.

11. The parallel fissure.

a. The superior frontal gyrus.

b. The inferior frontal gyrus.

d. Anterior central gyrus.

*d*¹. Posterior central gyrus.

e. Præcuneus.

f. Lobulus supra marginalis.

g. Gyrus angularis.

h. Undetermined.

i. Cuneus.

p. Gyrus temporalis superior.

o. Gyrus temporalis medius.

arms ; but there was no general resemblance to the distinctive arrangement of the muscular bundles in the ape.

The left carotid was given off from the innominate artery. It is the arrangement in the ape ; but is a common variety in the human species.

The circle of Willis was incomplete, from failure of the right posterior communicating artery.

The liver was unusually small ; the *valvulæ conniventes* were feebly developed. The general result of the whole dissection is considered by Bischoff to bear strongly against the theory of Vogt.

In all variations from the normal structure it is possible to find something like the arrangement which prevails in some of the lower animals, and in this case we have the *abductor pollicis longus*, and the *extensor pollicis brevis* which were united as in the ape, and the *valvulæ conniventes*, which were small in Helene Becker, and are totally wanting in the anthropoid apes ; but in most of the variations from the normal human structure no such resemblance could be found. The muscles distinctive of the human being, such as the facial ones, were all present.

Had Dr. Giacomini read Bischoff's paper, to which he several times refers, he could not have believed that the trunk and extremities of a microcephale had never been subjected to a minute dissection.¹ Under the impression that he was filling up a "lacuna" in scientific inquiry, the Italian anatomist made a careful examination of the bodies of Manolino and Rubiolio, two female microcephales. As he tells us, in no case were his hopes more sadly deluded and his trouble worse repaid. He found no abnormalities which could be treated as reversions of type. The peculiari-

¹ *Una Microcefala : osservazioni Anatomiche ed Anthropologiche del Dottore Carlo Giacomini Settore Capo all' Istituto Anatomico-patologico di Torino, con quattro tavole litografate. Torino, 1876, p. 72.*

ties noticed in the bodies of these two microcephales were much fewer than those found in Helene Becker, and are really not worth repeating.

C. G. Cioccio.

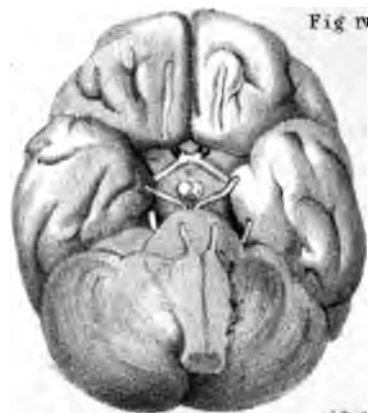
In the *Rivista Clinica di Bologna*, February 1873, Dr. Antonio Valenti gives a description of the skull and brain of a microcephalic idiot, who died at the age of 19, the same as mentioned in the pamphlet of Cardona already quoted.

The name of the owner of the small brain was Carlo Giuseppe Cioccio. His intelligence was of the lowest character; but it must be kept in view that he was a deaf mute. He died in the asylum at Rome, at the close of the year 1853. The brain and skull are in the museum of the Hospital S. Spirito at Rome. The annexed lithograph is carefully copied from the plates in the Italian journal. Cioccio was no more than 4 feet 6 inches in height; but, excepting the extraordinary smallness of the head, well proportioned. The skull was slightly oxycephalic; the jaws somewhat prognathous; the orbits were rather square in shape, and were situated higher up above the malar processes than usual, and not in an equal plane, for the left one was slightly higher than the right. The roof of the orbits was more arched than normal, thus invading on the space of the frontal lobes. All the sutures were open save the sagittal one, which was ossified in its posterior half, and the squamous, which was ossified throughout. Dr. Valenti observes that in the white races the coronal sutures slope backwards; whereas, in the savage races, the suture is parallel to the facial bone, thus leaving less space to the development of the frontal bone. The occipital foramen was farther back than usual. The bones of the skull were very compact, of the consistence of ivory. The following are some of the numerous measurements furnished by Dr. Valenti:—

	Millimetres.	Inches.	Lines.
Circumference	350	= 13	9
Occipito-frontal curve, taken from root of nose to posterior margin of the occipital foramen	215	= 8	3
Transverse curve, from superior border of one auditory meatus to the other	200	= 7	10
Longitudinal diameter, external	156	= 6	2
Biparietal (external) diameter, taken from middle of temporal bones	80	= 3	2
Biparietal (internal) diameter, taken from middle of temporal bones	76	= 3	5
Bitemporal diameter (external)	92	= 3	7
Internal do. do.	90	= 3	6

There remains no record of the weight of the brain at death. It has now been 19 years in spirits, but the shape seems well preserved. The most striking features of the brain are the smallness of the cerebrum compared with that of the cerebellum, and the imperfect development of the parietal and occipital lobes, as compared with that of the frontal and temporo-sphenoidal. The hemispheres are almost symmetrical; the frontal convolutions very simple. The fissure of Sylvius preserves its due length and proportion to the size of the brain, but goes obliquely, somewhat more backwards and upwards than usual. Dr. Valenti sums up thus:—

“The anatomical studies made on the distribution and development of the convolutions of this brain, have brought me to recognise a considerable degree of incomplete and imperfect organisation. Letting alone the simplicity and breadth of the gyri, which make it resemble the immature brain, we find either wanting or at least defective, some of those convolutions which predominate in the human brain when organised, and form, as it were, the characteristic of that high type of brain peculiar to man. These are the lobule of the ascending parietal convolution (*lobulus parietalis superior* of Ecker), very poorly developed in our case. The superior bridging convolution, as we have seen, is reduced to a short and



simple gyrus, still hid in the end of the lobule. The second convolution is also very defective, and the occipital lobe, and especially the gyrus occipitalis secundus, is also incomplete. It is the defective organisation of these convolutions, extending from the posterior extremity of the frontal lobe, which explains the shortness of the brain of our microcephale, in those parts situated behind the fissure of Sylvius. On account of this shortness the cerebellum is left uncovered."

"The anterior lobes are certainly the best developed, but the simplicity of the convolutions which compose it, as well as their small size, render this part of the brain also defective. It is the great development of these lobes, especially in the upper frontal region, which constitutes one of the distinguishing characters of the human brain, capable of the free and complete exercise of intellectual liberty."

Joe.

The following conversation which I had with a small-headed idiot, illustrates in a striking manner his peculiar mental deficiencies. I saw him at the workhouse in Lancaster along with Dr. Shuttleworth. He had much of the appearance of an English labourer, being rather tall, and strongly made, with hands large but well formed. I gained some additional information about his case from Mr. Metcalfe Johnson, a medical practitioner in Lancaster. He had a sister, who had also a very small head. From a drawing which Mr. Metcalfe Johnson had made of her, it appeared that she much resembled her brother. He always went by the name of Joe. He was 5 feet 9 inches in height, and was 34 inches round the chest; but in measuring him we did not take off his shoes or vest. The measurements of the head were more carefully taken.

1. Longitudinal, from glabella to occipital tuberosity, 11 inches = $27\frac{1}{2}$ c.
2. Circumference, $17\frac{1}{2}$ inches = $44\frac{1}{2}$ c.
3. Transverse, from one tragus of ear to the other, 11 inches.
4. From tragus of ear to middle of forehead, 5 inches = $12\frac{1}{2}$ c.
5. From tragus to occipital tuberosity, 3 inches 6 lines = $9\frac{1}{2}$ c.

The head was cone-shaped, or oxycephalic as Lombroso calls it ; the fore part rather better developed than the occiput, though the forehead slanted rapidly backwards. He had a sallow complexion and a long red nose. The palate was not vaulted. He wanted many teeth, which he said had been "drawed out." He was said to be 45 years of age, but had no gray hairs. Until within the last eighteen months he had been able to get enough wages to maintain himself. I believe he had been sent to the workhouse on account of some violence which he had threatened or committed upon a woman with whom he lodged. In the workhouse he was a great hand at loading and wheeling a barrow. His manner was at first hesitating, as if he were afraid of being made game of, but he soon began to be more confiding, when the following conversation took place :—

Q. You are a tall fellow. How high are you ?

Joe. I am 8 feet. I once was taller.

Q. How long was that ago ?

Joe. When I was a soldier.

Q. Were you a dragoon ?

Joe. No, the Cannons.

Q. The artillery. Then were you a gunner ?

Joe. No, I beats the big drum.

Q. How many men have you killed ?

Joe. I broke an Irishman's back once, and buried him alive. I got half-a-crown a-day for doing it.

Joe refused to give any further explanation of this exploit, which, it was supposed, referred to some fights between the English and Irish labourers during the construction of a railway line on which our friend worked. Joe then volunteered a piece of information which I was assured was correct.

Joe. A gentleman once left me £10 ; it was after he died.

Q. Were you glad he died, or sorry ?

Joe. I was glad when he died.

Q. Why were you glad ?

Joe. Because he went to Jesus.

Q. Would you like to go to Jesus yourself ?

Joe. Yes, I would rather go to Jesus than to the other.

Q. Who is the other ?

Joe. (After reflecting a little.) He has horns.

Q. Do you think you will go to Jesus yourself ?

Joe. I thinks I will go to Jesus.

Q. Are you always good, and behave yourself ?

Joe. The people sometimes teases me, and I gets in a rage. (And pointing to the governor of the workhouse, he added :) *He* tamed me. When the people makes a noise he speaks to them, and tames them.

Joe distinguished a fourpenny-bit from a sixpence. I asked him what piece of money he would like, and he replied ; "Some gentlemans gives me a shilling. I keep it till I have a purse full of money." He could count his fingers, and said he had five toes on each foot ; but did not seem to know much about divisions of time. He was easily puzzled, and said he did not know how many years were in a week. It will be seen that this poor creature had an intelligence, confused and superficial, but decidedly human in character. He had some notion of number, knew of a future state, and had a glimmering of moral relations. I do not know what amount of education he had received.

CHAPTER VII.

ECLAMPSIC IDIOCY.

Nature and Symptoms.

THOUGH eclampsia may appear in children of healthy parents, there is no doubt a pre-disposition, hereditary in some families, to take fits under exciting causes, which cannot be avoided. The most general, as well as one of the earliest of these exciting causes, is the cutting of the teeth. The convulsions may occur before teething; sometimes a few days after birth, possibly owing to some injury to the head during labour. It even happens that they do not return with dentition. From whatever cause arising, the child is thrown into fits, often long continued, and returning with short intermissions, placing its life in the utmost danger. In the great majority of cases the convulsions pass away, leaving no trace of their occurrence upon the nervous system of the child. Thus, amongst a large number of children who had convulsions at teething, only a few would be idiots; but amongst a number of idiots a considerable proportion would have convulsions at teething. Dr. Shuttleworth, who made some inquiries at Earlswood, found that 14 per cent of the cases out of idiocy there, were ascribed to convulsions at teething; injuries to the head at childbirth standing no higher than 6 per cent. The medical superintendent of a training school for idiots rarely sees these cases in their origin. What he sees is the results of the eclamptic fits several years afterwards.

Prognosis.

Further experience has only confirmed the unfavourable prognosis which I ventured to lay down, of eclamptic idiots, nearly five years ago. Though the power of muscular motion, as well as the tactile sensibility, is generally well preserved, and special sense does not appear to be injured, the intelligence is in a great degree destroyed, and the child remains, comparatively speaking, uneducable. He can be taught more readily to work than to think. Often the child remains a mute. To this unfavourable prognosis there are exceptions, but relatively not numerous. The remark of a writer¹ on epileptic insanity seems to hold good with eclamptic idiots. "No principle has received a greater sanction from experience than that the earlier the age at which epilepsy springs up, the deeper it undermines the organic and moral constitution, and the more disastrous are its results."

Differential Diagnosis.

The difference between eclamptic and epileptic idiocy is, that in the first form there is a succession of fits following close upon one another, after a time the child recovers its bodily health, the fits cease, leaving behind alterations in the structure of the brain, which have disordered and arrested its health and nutrition. In epileptic idiocy, on the other hand, the convulsions recur at more distant intervals; but the disease does not show the same tendency to disappear. A total cessation of the fits is rare, and the physician is generally pleased if he can succeed in increasing the length of the intervals between each attack by medical or dietetic treatment.

A fresh study of new cases might add to the numbers of those studied as reported in my paper of 1872, but would

¹ Dr. M. G. Echeverria, in the *American Journal of Insanity*, July 1873.

not alter the results, though time has helped me to make a few changes.

Illustrative Cases.

In one of the thirteen cases which we have collected, the eldest brother was also idiotic, and from the same cause as the younger. As his father expressed it, he had one or two fits at every new tooth. The parents were cousins. This boy was five years in the Institution, and made considerable improvement both in intelligence, conduct, and power of articulation. As his father wrote upon his return: "I am thankful to see him as he is, well clothed, lively, and healthy. He is very obedient too, and does all he can to carry out what he is desired to. There is a blank that no human effort ever can fill up; that appears at once, poor fellow; but I have no doubt but he has received great advantage by being at Larbert Institution that he could not have received at home." He promised a more careful account of the improvement noticed in the boy's mental powers, which has not yet reached us.

Sometimes after the fits there is more or less paralysis of one side, which may never entirely pass away. Of the thirteen cases carefully studied, six could be taught to work a little with their hands, in other things they were of comparatively inferior intelligence. In two the grasp was deficient. In one of these cases the pupil was prevented by imperfect power and insensibility in the hands from learning to work properly, though she was willing and docile, could learn to read a little, and possessed, comparatively speaking, a considerable amount of intelligence. Eight of our eclampsic cases were mutes, or nearly so, and three articulated imperfectly, thus, only two could speak correctly. But of these two, one was a very educable case, a girl who was believed to have been born at the full time, and with neither difficulty nor

accident. The fits occurred when she was six weeks old, and were accompanied with febrile action. Her life was despaired of, but the fits passed away entirely, and did not return with dentition. She was a weakly and delicate child, but is now healthy, strong, and active. She entered the Institution at fourteen years of age, and was five years with us. She made slow progress in learning to read, but great progress in learning to work. She could fill brushes quicker than any of the pupils, and was good at sewing, knitting, and household work. There was also a great improvement in general intelligence.

Observations on the production of eclamptic idiocy, by a skilful physician who has much practice amongst children, are much to be desired. I believe there is hyperæmia of the brain and membranes, which is shown by elevation of the fontanelles, and sometimes by the *tâche meningitique*.

Pathological Anatomy.

When a child is taken with convulsions and dies, Trousseau¹ tells us, one finds on examination a more or less considerable congestion of the membrane of the brain and of the medulla, and a serous effusion in the ventricles or in the arachnoid cavity. Sometimes, too, we find one or two hæmorrhagic spots, and fibrinous clots in the large vessels and sinuses.

I am much at a loss for dissections of uncomplicated cases of eclamptic idiocy; but, from the examinations made by myself as well as those recorded by others, I am inclined to think that the lesions most commonly observed are adhesions of the membranes, some wasting of the gyri, especially of the frontal ones, and the brain tissue harder and tougher than usual, with fewer vascular spots. I am not aware that the microscopic changes have been carefully studied.

¹ *Clinique Médicale*. Tome ii. pp. 163-164. See also *Diseases of Infancy and Childhood*. By J. Lewis Smith, M.D. Philadelphia, 1872, p. 376.

CHAPTER VIII.

EPILEPTIC IDIOCY.

Nature and Symptoms.

I APPLY this name to those cases where the epilepsy seems to be the cause of the mental obtuseness, for it ought to be kept in mind that congenital idiots are now and then subject to epileptic fits, which need not necessarily have a marked effect upon the intelligence, and in any case can only be regarded as a complication. Epilepsy, as is well known, is one of the commonest causes of insanity as well as of idiocy, and in making our definition of classes it is difficult to know where to draw the line between epileptic idiocy and epileptic dementia. It is inconvenient to draw the line so as to include children under the heading of lunatics, in case they should be sent to asylums for the insane, where there is no proper provision for their training and treatment, and where, owing to their proneness to imitate bad examples, they rapidly deteriorate. If the epilepsy has caused the faculties to become impaired before the age of seven, it appears to me that the patients ought to be treated as epileptic idiots, and I see no practical difficulties to their being admitted to training schools if they be at all educable.

Romberg, Russell Reynolds, and others, have shown that hereditary epilepsy manifests itself at an earlier age than non-hereditary epilepsy; hence one might expect to find a neurotic tendency in the parents of epileptic idiots. I have only made this out in three out of twenty-six cases; but

Scotland is a bad country for obtaining information on such points. In twelve out of twenty-five cases, the fits showed themselves the first year, generally during teething; in one case during the second year, in two during the third, in two during the fourth, and in the rest from the fifth to the seventh year. The most improving cases were those in which the disease commenced after the first year.

In the epileptic attacks of idiots we have both the *petit* and the *grand mal*; and the first is as bad in its stupefying effects on the mind as the second. In most cases they come on without any warning; one patient generally complains of a headache before the fit; in another there is often a glazed appearance of the eyes, with redness of the sclerotic, paleness of the face, increase of the nodding movement of the neck, and unusual irritability of temper, lasting a day or two before the attack supervenes. It was found necessary to avoid taking this patient into the hall to see the dancing, as it was apt to bring on the fit. Sometimes the exciting cause is a fright, agitation, or indigestion. Sometimes, though rarely, the imbecile is aware of an approaching attack. On one occasion a boy warned his teacher that he would have a fit, and said that his mother always unloosed his clothes. The fit came on in a few minutes. Another boy sometimes knows that the fit is coming, "his e'en gangs black," that is, everything becomes dark to his eyes.

Even when the fits are frequent the general health of this class is in most cases vigorous; they have a good appetite, and are physically powerful. It has been noticed in asylums that epileptic lunatics are generally the strongest, and can do most work. In seven cases out of twenty-five there was dulness of touch.

Prognosis.

In mental character they are droll and eccentric; most of

the funny anecdotes in an Institution like ours are told of epileptics. They are often wild, intractable, and irritable ; in fact seem to be on the boundary line between idiocy and insanity. Though they generally possess an amount of intelligence apt to deceive those who do not take into consideration the existence of a disease which may be expected again and again to return, they are not easily taught, and are liable to lose what they have learned. If some progress has been made through the unwearied efforts of the teacher, a renewed attack, or series of attacks, has a tendency to wipe the new accomplishments away, and the teacher has to recommence his work over again. However, I am convinced that this unfortunate event is not so common as represented by some writers. With the majority of our epileptics, the continuance of the fits no doubt retards the growth of the intelligence, and the pupils are duller and heavier for a few days after an attack. When this has passed away, they again commence their tasks, and take up their interrupted lessons without any loss of acquired knowledge being noted.

For these reasons, as well as from the sudden and distressing nature of the epileptic fits, and the greater amount of care and attendance which they require, cases of idiocy, complicated with epilepsy, have appeared so little promising that they are excluded from the gratuitous benefits of all training schools both in Great Britain and America. At the same time this unfortunate class has found its advocates. Dr. W. A. F. Browne, in his lecture on Epileptic Mania, has the following suggestive remark :—"Deeply interested in this branch of our subject, and having observed that a high authority, M. Parchappe, declared that ten individuals had been discharged from Bicêtre recovered from idiocy, I some years ago proceeded to France to see and examine these creations of our art. My mission was unsuccessful. I could not trace these convalescents to the loom, the plough, or the

vineyard ; I could not obtain accurate information as to the amount of capacity and enlightenment attained. But it was not fruitless, for these researches brought to light what may be ranked as a discovery, that whatever the benefits conferred might be, the triumph had been achieved chiefly in the class of epileptic idiots ; that certain of those discharged belonged to this class, and that the steps and *rationale* of the achievement consisted in the cure or removal, or mitigation of the epilepsy, and the subsequent evolution—whether spontaneous or artificial—matters little, of comparative lucidity and educability. It is unnecessary to insist upon this additional illustration of idiocy being a disease which is to be cured, not merely an embryo faculty to be developed. You can understand why, on finding corroboration of these observations in this country, I have since held the heresy that epileptic idiots are as favourable subjects for training as other idiots, if not more so.¹

For my part, while allowing great weight to the judgment and experience of Dr. Browne, I should like very decided evidence that eccentric or sympathetic irritation of a removable character exciting epilepsy becomes the cause of idiocy or imbecility in a sufficient proportion of cases to warrant our regarding a cure of the epilepsy with subsequent cure or removal of the idiocy as an occurrence within the bounds of reasonable probability. Whatever may be the cause of the epilepsy, its association with idiocy leads, in my mind, to the presumption that a lesion has been produced in the brain and spinal cord not likely ever to be effaced.

Dr. Isaac Kerlin,² who has treated a considerable number of epileptics, 157 out of 701 idiots, claims to have had 23 cures and 78 cases improved. But what Dr. Kerlin means by

¹ *Journal of Mental Science*, vol. xi., p. 352.

² Fourteenth and twenty-first Annual Reports of the Pennsylvania Training School for feeble-minded children.

a cure is the total cessation of the fits; and what Dr. Browne means by a cure is the cessation of the fits and the disappearance of the imbecility. Although the rules of his training-school forbid the admission of an epileptic patient on the beneficiary list, Dr. Kerlin thus argues in favour of their being taken on trial :—

“But the argument of positive deterioration of the epileptic imbecile is no longer true. Seguin, the close observer and kind physician, cites a case of profound idiocy complicated with epilepsy, in which the motor disorders and nervous irritability were so regularised by sharp training, that in the sixth month the daily attacks of epilepsy entirely left him, and from *idiot* he grew to be *imbecile*; while several cases of corresponding improvement in our own family must serve to change our opinion and practice in relation to epilepsy.”

The probability of a complete cure of idiocy is greater in the epileptic form than in any of the other classes save that of idiocy of deprivation. I have given a short abstract of a remarkable case,¹ which it may be worth while to reproduce.

A girl, whose father was a drunkard and epileptic, had fits when three years old, from which she recovered, and grew up to the age of fourteen without any deficiency of intelligence or bodily disease. “About this age the epileptic attacks again returned, and became very frequent, when she passed by degrees into a fatuous state. Her gait became tottering; often she was unable to sit up even in an easy chair, and she even required to be fed. Sometimes she would wander about at night, instead of sleeping, or fall into maniacal bursts of passion. After four years’ illness she was admitted into the asylum under Dr. Wiedemeister, of Osnabrück, where she passed her time in the compartments used for dirty and noisy patients. The fits were both severe and frequent, and she was treated with bromide of potassium and oxide of zinc. Little

¹ In the *German Retrospect of the Journal of Mental Science*, July 1873.

hope was held out of her recovery ; but, after being a year in the asylum, and five years ill with epilepsy, the fits began to be less frequent. In November her catamenia first appeared, and in December the last fit was seen. She began to do simple pieces of work, her strength revived, and her intelligence gradually returned, and on the 23d of June 1872, after being three years in the asylum, she was dismissed, cured of imbecility and epilepsy. On her returning to the world, it was found that she had forgotten many things which she had once learned. She had again to be taught to sew and knit. She had entirely lost the use of speech ; even during the period of her deepest fatuity she used to sing songs which she had learned in the school, generally with the proper tunes ; and when she was again sent to her lessons, it was found out she had not entirely forgotten reading and writing. During her fatuous condition she was not able to recognise her mother, and on her recovery she had entirely forgotten that her mother had pigs and cows ; nor did she recognise her native place, nor even her home, when brought back to it."

Schroeder van der Kolk¹ gives another instance of a lad of seventeen, who was nearly idiotic from frequently-recurring attacks of epilepsy, who recovered after incisions being made in the scalp, and issues being kept up. "His mental powers, although not greatly developed, were remarkably improved ; writing, arithmetic, etc., progressed satisfactorily ; while he had a situation in a factory. The only peculiarity he manifested was tolerably constant irritability of temper. It was, however, extremely important that from time to time, instead of an attack, hæmorrhage took place from the wound, with the effect of greatly clearing his head."

The lad remained for eighteen months free from epileptic fits, when he died of consumption. "From this case," observes

¹ On the Spinal Cord and Medulla Oblongata, and on Epilepsy. Sydenham Society, London, 1859, p. 272.

the distinguished Dutch pathologist, "it is particularly clear that idiocy, or apparent dementia, after epilepsy, is quite a different disease from dementia after idiopathic mania, which always depends upon degeneration and atrophy of the cortical substance, and is incapable of cure."

Cases like these may be held in mind to save us from desponding, but, like the hundred thousand franc prize in a lottery, they are unhappily extremely rare. The ordinary result of the admission of a number of epileptic idiots into a training-school would be an increased proportion of unimprovable patients, exhibiting all the distressing symptoms of epilepsy combined with mental deficiency or alienation. Almost all medical superintendents of training-schools give an unfavourable prognosis in epileptic idiocy. Dr. Shuttleworth, once assistant physician at Earlswood, and now medical superintendent of the Royal Albert Asylum at Lancaster, has remarked that there were eighty epileptics at Earlswood, and that of these there were between forty and fifty cases incapable of improvement, whereas of the other idiots no more than six per cent were entirely unimprovable.

Dr. Kind, of Langenhagen, in Hanover, says that he has had about thirty epileptic idiots, among which he had several cures, but only with small results. They presented all forms of the disease, from the mildest to the most severe, and were all the more difficult to treat that they presented on the one side complete fatuity and bodily helplessness, and on the other irritability, sometimes going as far as complete mania. The rules of the Larbert Institution are not favourable to the admission of epileptic idiots, and the less promising cases are generally excluded. Nevertheless, of twenty-seven patients who found their way into the house, ten did not appear to improve; seven improved a little; and nine improved considerably. By improvement, increase of intelligence is meant generally, accompanied with diminution

in the number of fits. In three cases the fits have ceased, and great amelioration in intelligence has followed in two of them.

It ought to be kept fully in mind that epilepsy may exist without any intellectual failure. Dr. Russell Reynolds found this to hold good in 38 per cent of his cases, and that such a high rate of frequency as 1100 attacks in the year may exist for 17 years without producing any intellectual change; whereas, so low a rate as 72 in the year may damage the mental condition most seriously, and that in five years. "That the cause of mental failure," writes Dr. Reynolds, "is not identical with that which induces the attacks, is evident from the perfect intellectual integrity of some who suffer severely from the paroxysms, and also from the absence of all direct proportion between the degree of impairment and that of exalted motility. That its cause is, however, closely associated with that of the attacks, is to be inferred from the fact that the degree of failure does bear direct proportion to the frequency of the latter. And we may further gather that its relation is closer to that element in the causation of attacks which induces loss of consciousness, than to that which causes the convulsion, since it is with "le petit mal" that intellectual deterioration is associated more notably than with the violent paroxysms."¹

The essential lesion of epilepsy is in the medulla oblongata, not in the cerebrum. According to Schroeder van der Kolk we have first an exalted state of sensibility and activity of the medulla, then increased injection of the vessels and widening of their calibre, increased vascular supply, and exudation of albumen, passing into fatty degeneration and softening.

¹ *Epilepsy: its Symptoms, Treatment, and Relation to other chronic convulsive Diseases*, by J. Russell Reynolds, M.D., London, etc. London, 1861, pp. 43 and 190-282.

Illustrative Cases.

The following cases may be shortly referred to as examples :—

K. C.—Epilepsy, said to have been caused by fright when seven years of age. Admitted at the age of 14, and although it was asserted, in order to secure her gratuitous admission, that the fits had ceased, the unfortunate girl had all the marks of a confirmed epileptic. A piece of her tongue had been bitten away, and she had some scars of severe burns. She was short of stature, 3 feet $7\frac{1}{2}$ inches in height, but broad and square, like a Lapp woman. She weighed 62 lbs. A great many therapeutic means were tried, such as bromide of potassium, belladonna, nitrate of silver, and spinal ice bags. After a fortnight the number of the fits diminished, but the improvement soon passed away. The fits, which were never very severe nor long continued, began again to recur four or five times every day, sometimes as often as ten or twelve times. After six months' stay in the sick-room she was dismissed as an unfit case. Her intellect had become duller, her habits degenerated, and she had lost 3 lbs. in weight.

B. C.—There was often considerable intervals, sometimes as much as two or three months, between the fits. He was always dull and heavy for several days afterwards. His memory was very fugitive, and though an amiable, talkative child, he learned very little. He seemed almost to want the abstract idea of number, and was three years in the institution before he could be taught to count three.

After having been nearly six years in the institution, and the fits had become rare, they suddenly recurred with great frequency and severity. After a temporary lull they once more returned, and he died, apparently from exhaustion, in the twelfth year of his age. An examination of his brain was made, though, from the circumstances of the funeral, of a

hurried character. The superficial vessels were much congested, there were no adhesions. The brain tissue was found somewhat softer than usual. There was no hardening of the medulla. The weight of the brain was considerable, 55½ ounces. The skull was somewhat unequal in shape viewed posteriorly. The sutures were not yet united.

B. D.—Fits occurred at rare intervals; believed sometimes to pass four or five months without one. At home they must have been more frequent, for it was noticed as something remarkable that he was a month without them during the holidays. Improved slowly in intelligence. Could add a little, but could not learn to write.

He was very stubborn and self-willed, would provoke the other boys till they struck him, which he endured with stolid indifference. Touch and sensibility to pain were deficient. He was slow of apprehension and of utterance, but was observant, and made odd and eccentric remarks. He died at the age of 18 of double pneumonia, after being four years in the institution. No necroscopy could be made.

Y. Q., aged 11, a mute, but with enough of intelligence to be classed as an aphasiac idiot, very strong and active, difficult to manage; tears clothes occasionally, small of her age. Considerably improved, had shown no epileptic fits for two years, but had some very severe attacks two days before leaving the institution.

B. D., aged 10. Father's sister insane; sister died of convulsions at teething; began to walk at three years; fits not noticed till six; has epileptic vertigo frequently, for which he has been treated for nearly a year with bromide of potassium. Was five months in the institution when withdrawn. Was believed to be improving.

N. C., aged 28. Has been well nigh ten years in the establishment; is almost totally deaf; had fits up to ten years of age, which have now entirely ceased; very much improved;

can speak on her fingers ; can knit, sew, do household work, reads and writes ; reads books of her own accord ; entirely passed out of the state of imbecility. This would be a more encouraging case if the degree of imbecility in which the girl entered the institution was more precisely ascertained. It appears from the case-book that she could read and spell on her fingers, and had gone through the full training at a deaf and dumb school. On the other hand, her father was intemperate, her mother had three strokes of paralysis (though after the birth of N. C.). The girl was observed to be imbecile from birth ; only began to walk at five years. On admission she was noted to have "legs weak, subparalytic," and to be incapable of any useful occupation. She long bore the character of being too indifferent to the distinctions of *meum et tuum*. There is, therefore, no reasonable doubt that she has much improved in intelligence. The fits have ceased, and the weakness of the legs quite disappeared. She is now a servant in the institution.

K. Q., 10 years of age ; began to speak and walk at usual time. Imbecility said to date from fourth year, when epileptic fits began. They were frequent for three years, but are now rare. Is always anxious to learn something new, so that the difficulty in teaching him is not more than one would find in an ordinary child. He has a bad memory, and loses quickly what he learns. He is greatly improved in speech. When he came, about fourteen months ago, he could hardly talk any. He has learned a large number of figurative signs, and can write and read many words, but articles and verbs puzzle him. He can sew a little and knit to any pattern. He understands form, and is beginning to learn the relations of number. He has little ear for music, though he can dance. He is useful in assisting to dress the other children. Though generally good natured, he resents being found fault with, and is often

very sulky. He is given to stealing, but is ashamed when detected. He is being treated with bromide of potassium.

Pathological Anatomy.

The loss of consciousness is believed to be owing to the want of arterial blood in the brain, augmented by the toxic effect of venous blood in the half asphyxiated condition often following the convulsions. This condition of the brain may pass away without harm, or leave behind it some lesion. This lesion is the effect of the epilepsy, but the cause of the idiocy. The cumulative effects of the lesion increase in proportion both to the extent of the injury to the tissues of the brain, and to the frequency of the seizures.

According to Echeverria¹ the regions of the encephalon liable to be first encroached upon by the disease, are the floor of the third ventricle, the corpora striata, optic thalami, the convolutional gray substance, and the peduncles of the cerebellum.

Such is our dearth of direct observations that we are willing to allow Dr. J. Crichton Browne's² opinion to pass for the time that the lesions in the epileptic idiot are the same as those which are described in the epileptic dement. The morbid changes which he has found after epileptic dementia are atrophy of the brain, evidenced by some opacity of the arachnoid, diminished size of the gyri, and enlargement of the sulci, which contain some compensatory serous fluid, a quantity of which also generally occupies the enlarged ventricles. The atrophy of epilepsy is moderate in degree. It rarely approaches that of old age, chronic alcoholism, or simple brain-wasting.

Out of fourteen examinations of the brains of patients suffering under dementia and epilepsy, MM. Bouchet and

¹ See his book on *Epilepsy*. New York, 1870, p. 60.

² *Journal of Mental Science*, April 1873.

Kazauvielh found hyperæmia of the brain and membranes in fourteen cases, indurations partial or general in seven cases, softening partial or general in seven cases, and the convolutions small and atrophied in seven cases.¹ Atheroma of the vessels is not commonly met with ; but traces of extravasated blood are sometimes observed under the membranes. Dr. Howden, of the Montrose Asylum,² observes that "effusions in the pia mater are not unfrequent in epileptics ; those I have met with are of old standing, and had assumed the character of rusty gelatinous deposits." Trousseau³ believed that after severe attacks of epilepsy slight effusions of blood are produced in the substance of the brain, in the membranes, and in the spinal cord, similar to the ecchymoses which appear in the subcutaneous tissue of the skin. Effusions of larger size have been described by Calmeil⁴ and others. These effusions explain the paralysis which sometimes follows epilepsy, and which may pass away in a few days. Unfortunately it is not always so, for there are cases where epileptic idiocy is complicated with paralysis. In several instances where I had an opportunity of being present at the post-mortem examination of epileptic lunatics, increased hardness of the brain and dilatation of the vessels were noted. Hardening of the olivary bodies was not always present, though in some cases it was very well marked. In other instances no change visible to the naked eye was discoverable. I have only examined the brains of two epileptic idiots ; the one already mentioned, and another,

¹ *Récherches sur l'Encephale, sa Structure, et ses Maladies*, par M. Par-chappe. Paris, 1838, p. 200.

² See his *Analysis of the Post-mortem Appearances in 235 Insane Persons*, p. 5.

³ *Clinique Médicale*. Paris, 1868, tome ii. p. 97.

⁴ There is a most instructive series of cases of brain disease, with their accompanying lesions, in the *Traité des Maladies Inflammatoires du Cerveau*, par le Dr. L. F. Calmeil. Paris, 1859.

where the gray matter was found somewhat wasted. In both the vessels of the pia mater were much distended.

It is likely enough that in epileptic attacks which obscure the intellect in a passing degree, dilatation of the vessels is the only lesion produced, and that this is succeeded by albuminous deposit outside the capillaries when the attacks become more severe and persistent, and that hæmorrhage only appears in the more violent cases, especially where the coats of the arteries are diseased. It is probably this albuminous deposit which increases the weight of the brains of epileptics. The weight of the hemispheres on different sides is sometimes unequal, and this is sometimes accompanied by inequalities in the circumference of the head.

Dr. John Batty Tuke¹ describes the brain of an epileptic idiot which weighed 60 ounces, within 4 ounces of the brain of Cuvier. Dr. Tuke attributed this to the great increase which he found in the neuroglia, and a molecular deposit observed in the vessels.

Dr. Echeverria who studied the nervous centres in two cases of epilepsy attended with idiocy, remarks, "the morbid changes on these occasions, as with epilepsy generally, have been of an atrophic nature—diminution of cortical substance, and of the nervous elements, with exuberant genesis of connective tissue, undergoing a retrograde or fatty metamorphosis, such may be resumed the kind of degeneration displayed by these cases,"² in fact very much the same changes as were observed in the medulla oblongata of epileptics. The capillaries were found to be deficient in number, and to have undergone the cretaceous or fatty degeneration.

¹ On a case of hypertrophy of the right cerebral hemisphere with co-existent atrophy of the left side of the body. *Journal of Anatomy and Physiology*, vol. vii.

² Echeverria, *op. cit.*, p. 83.

Treatment.

In the matter of treatment bromide of potassium seems to have a less favourable effect upon the inveterate cases of epilepsy which come into an institution for idiots, or into an asylum for lunatics, than it has in outdoor practice. Nevertheless I am convinced that this medicine has a marked effect in diminishing the number of fits, and that they increase again when it is suspended. Where it appears to fail I try belladonna and nitrate of silver, after the manner recommended by Trousseau in his *Clinique Médicale*.

Where there is anæmia or a marked tubercular tendency I give cod liver oil. I have for some months tried the plan of raising the bed so as to bring the upper part of the body to an angle of 40 or 45, as recommended by Dr. Russell Reynolds.

Where improvement follows treatment, I am disposed to attribute it as much to diet as to medicine. Benefit is sometimes derived from excluding flesh meat from the dietary of epileptics, a piece of advice which I got long ago from Trousseau, on his visits to the Hôtel Dieu, and which has been repeated by Dr. Hughlings Jackson.

In a communication on the Scientific and Empirical Investigation of Epilepsies,¹ this distinguished physician, who has so deep an insight into morbid processes, thus states his views on this method of treatment:—

“I believe that the highly unstable grey matter of disease (in a ‘discharging lesion’) differs in Composition, but not in Constitution, from the comparatively stable grey matter of health. The alteration in composition is, of course, such that the nervous substance formed is more explosive.

“We must suppose that there is some order in this Substitution—Nutrition; it plainly is in the direction of

¹ In the *Medical Press and Circular*, November 3d, 1875.

explosiveness or instability. The following is a speculation as to the kind of alteration of composition :—

“One important component of nervous matter is phosphorus. This substance belongs to the chemical class of triads, of which other members are nitrogen and arsenic. My speculation is that in the abnormal nutritive process, producing unstable nervous matter, the phosphorus ingredient is replaced wholly or partly by its chemical congener—nitrogen. There is a ‘Substitution Compound.’ The replacement probably occurs in different degrees, as it does in the three differing chloracetic acids. If nitrogen be substituted, as supposed, we can easily understand that the substance produced would be more explosive. For nitrogen enters into nearly all unstable compounds. The supposed value of arsenic (α) in certain nervous affections is in this view significant; it is another member of the group of triads.

“The nutrition is therefore supposed to be defective, not in quantity, but in quality, in those functional alterations of grey matter which I call ‘discharging lesions.’ It is hasty nutrition. There is more force and less stability. The following quotation from Beale’s third Lumleian Lecture is important as regards the general truth in this special case :—

“‘As it were between the two extremes, are forms of bioplasm, that grow and deteriorate, but still live for years under adverse circumstances, the structures formed never attaining a state of vigour, but still being formed and acting in an imperfect way, and perhaps for a long period of time. The weak, succulent, too quickly developed vegetation of our fern cases is an example; and the soft rickety tissues of some of our weak, flabby, over-fed town-bred, highly precocious children, supply a very painful instance of too quick formation and growth. In such cases the bioplasm has grown too fast, and tissue has been formed too quickly. Time has not been allowed for its condensation and strength,

and for the acquisition of resisting and lasting properties. But is it not a mistake to point to such cases as examples of diminished *vital action*? (The italics in what follows are mine.) *It seems to me that life has been carried on too fast and not too slowly. Too much pabulum has been taken up—not too little. Too much heat, too much food, favour a quick, rank, succulent, spongy sort of development inducing the formation of soft bones and weak imperfectly-acting tissues, which are likely soon to deteriorate.*

“I think this speculation that the unstable grey matter is over-azotised has a practical bearing on the dietetic treatment of epileptics. I advise epileptics not to eat much meat (not much nitrogenised food). I was, however, led to advise my epileptic patients not to eat much meat, not by the speculation just mentioned, but by the following remarks of Dr. Haughton :—

“‘The hunted deer will outrun the leopard in a fair and open chase, because the force supplied to its muscles by the *vegetable* food is capable of being given out *continuously for a long period of time* ; but in a sudden rush, at a near distance, the leopard will infallibly overtake the deer, because its *flesh* food stores up in the blood a reserve of force capable of being given out *instantaneously* in the form of exceeding *rapid* muscular actions.’

“Of course, this quotation bears very generally. It shows, I submit, that highly nitrogenised tissue is less durable, and more easily and rapidly decomposable.

“As the two following quotations show, there is no novelty on my part in the dietetic advice above given.

“Speaking of the treatment of epilepsy in children, Dr. West says :—

“‘The diet should be mild, nutritious, but usually unstimulating, and, as a general rule, should include meat comparatively seldom, and in small quantities. I have

certainly seen epileptic fits increased in frequency and severity by an abundant meat diet, and diminished in both respects when a diet chiefly of milk and vegetables was adopted.'—West, *Diseases of Children*, 6th edition.

"Dr. West adds in a foot-note (*op. cit.*)—'My attention was first drawn to the importance of abstinence from a meat diet in epileptics by Dr. Maxwell, formerly resident physician to the Asylum for Idiots. This caution, too, gains still greater weight from the testimony of Dr. Jackson of Boston, in America, who, in his *Letters to a Young Physician*, 12mo, Boston, U.S., 1855, p. 67, insists very strongly on its importance.'"

A recent experimental inquiry on the effects of abstinence from flesh meats in epilepsy, recorded in the fifth volume of the West Riding Asylum Reports, goes to confirm this method of treatment, which has been practised by me for above six years at the Larbert Institution. My predecessor, Dr. Brodie, is of the same opinion, as may be seen from a letter of his in the *Dietetic Reformer*¹ on "Diet and Epilepsy."

It is likely that the gymnastic training given by us is also of advantage in treating epilepsy. "During the last three or four years," remarks Dr. Radcliffe,² "I have seen several cases of epilepsy, chorea, and hysteria, in which undoubted good has resulted from the adoption of a regular course of suitable gymnastic exercises." Dr. Echeverria³ also observes, "Epileptics should not be permitted to remain in idleness; they ought to be made to move about, if they can but walk. Gymnastics, tried as far as the strength of the individual will allow, are of much avail, for by systematically training him or her we may deeply change the constitution and subdue the

¹ January 1877.

² *Lectures on Epilepsy, Pain, Paralysis, etc.*, by C. B. Radcliffe, M.D. London, 1864, p. 227.

³ *On Epilepsy: Anatomico-Pathological and Clinical Notes*, by M. Gonzale Echeverria, M.D. Paris, New York, 1870, p. 337.

nervous system. The exercises should never be continued until fatiguing the patient, lest they might prove injurious. . . . Yet it is needful to their welfare that they devote themselves to some kind of labour, and that they be equally provided for in their intellectual advancement."

I generally send epileptics back to school a day or two after the stupor following the fits has passed away, since there is no proof that mental exercise does them anything but good.

The remarks of Dr. Russell Reynolds hold good for our cases also. "No more mischievous advice can be given than that which is often uttered in the words 'Let the mind lie fallow; throw away books and all studies, and allow the child or the adult to be crossed in no way, but to do just as he or she may wish or fancy at the time.'¹ By these means the habit of attention, the faculties of memory and of self-government, and the intellectual powers generally, are damaged, and that rapidly and seriously. Instead of this plan there should be regular disciplined mental effort, and this not only daily but hourly, of course duly guarded as to time and intensity, and alternated with relaxation. There should be no 'strain,' but the patient should have to cultivate by exercise the powers of his mind; should have, for example, to read or hear read a few lines, or as much as can be borne without fatigue, and then to repeat their meaning, or write it down in other words. Thus attention, 'apprehension, thought, reflection, memory, and reconstruction are all employed, and this may be accomplished in the child by one line of the simplest and most childlike hymn, and in the adult by such kind and amount of either prose or poetry as it may be within his power to follow."

Dr. Reynolds considers much reading hurtful, but there is

¹ *Epilepsy: its Symptoms, Treatment, and Relation to other Chronic Convulsive Diseases*, by J. Russell Reynolds, M.D. London, 1861, pp. 336-7.

little danger of imbeciles fatiguing themselves by too great mental effort. As a general rule the indolence of the imbecile is a complete safeguard against over-exertion whether bodily or mental.

Whatever the success of the treatment may be, the patient is never secure against falling back again, save by the total cessation of the epileptic fits. Sometimes the mental powers continue to increase until puberty or later, and then the fits become more frequent, and either bring the sufferer to his end or render him insane.

It is always prudent to explain, when consulted about the hope of improvement of an epileptic imbecile, that a disease still exists which has an unfavourable effect upon the mental condition, and that much improvement cannot be expected unless the fits diminish notably in frequency or cease altogether.

CHAPTER IX.

HYDROCEPHALIC IDIOCY.

Nature and Symptoms.

HYDROCEPHALUS is the most fatal of the nervous diseases of children, as may be seen by a glance at the Registrar-General's Returns ; but while many children die of water in the head, and some recover without their intellects being impaired, there are a few who neither die nor recover—they become idiotic. The disease turns chronic ; the pressure of the fluid relaxes ; the head ceases to increase ; Wormian bones are thrown out where the edges of sutures are distant from one another ; and the brain to a certain extent recovers from the pressure and stretching which it has received. Sometimes the hydrocephalus is congenital, coming on before, or more often shortly after birth ; at other times the hydrocephalus is acquired, coming on in the first few years of childhood. In this case it seldom appears before the tenth month, and is commonest from the fourth to the seventh year.

In some cases the hydrocephalus seems to have a dwarfing effect upon the general growth of the body ; sometimes the child is deaf, probably from the lateral expansion of the bones of the cranium, or the increase of fluid between the brain and meatus auditorius internus, causing stretching of the portio mollis.¹ The wasting of the optic disc or papilla, observed by

¹ On the connection between hydrocephalus and deafness, see *Diseases of the Ear*, by John Nottingham, Surgeon to the Southern Hospital, Consulting Surgeon to the Eye and Ear Institution, Liverpool. London, 1857, pp. 498-500. "The lateral widening of the head," writes Mr. Nottingham,

M. Bouchut, is probably a secondary result. Occasionally hearing is restored, owing to the tension being relaxed, or to the nerve becoming accustomed to it; more rarely blindness follows water in the head,¹ perhaps through the pressure of fluid upon the corpora quadrigemina, or on the optic nerves at the tuber cinereum. The sense of touch is in some cases dull. Squinting is not uncommon. The voice sometimes undergoes a peculiar alteration; the patient speaks in a lower key, and with a hollow timbre.

From the peculiar form of the head, and specially from the obovate appearance of the crown looked at from above, there is generally little difficulty in recognising hydrocephalic idiots, though it occasionally happens that the head is not larger than usual, where the brain has been much diminished by the pressure of watery effusion; and some men with heads hydrocephalic both in size and shape are possessed of ordinary intelligence. As a general rule, however, hydrocephalic idiots have got larger heads than other idiots, and, indeed, where the head appears to be unusually large, hydrocephalus may be shrewdly suspected. On the other hand, as already re-

"which is often noticed in cases of hydrocephalus, must tell upon the acoustic nerves, while the antero-posterior elongation of the head, which would be more likely to affect the optic nerves, is more opposed by the mechanism and strength of the frontal and occipital parts of the skull, to say nothing of the structure of the nerves of vision, which are much more likely to resist the influences of stretching or of pressure than is the soft material of the portio mollis.

"We now and then meet with cases of blindness, occurring during the progress of hydrocephalus, where the elongation of the head is not more striking than the increase of its width." P. 500.

¹ Dr. Rud Leubuscher, in his work, *Die Krankheiten des Nervensystems*, Leipzig, 1860, s. 221, says that injury to the sense of hearing is rarer than loss or diminution of the sense of sight. My own remarks refer to hydrocephalic idiocy, not to acute or uncomplicated hydrocephalus. I have found deafness or dulness of hearing in four cases out of fourteen, blindness in one case. Mr. Nottingham is in full disaccord with Dr. Leubuscher; he writes: "Deafness is by no means rare; blindness, however, is not so often met with; while deafness and blindness together are seldom observed." P. 500.

marked, a normal or even a small head is no proof that hydrocephalus has not existed in infancy.

In some cases under my notice, in whom hydrocephalus had been observed in infancy, the head was of the usual size for a child of the same age.

Dr. Klebs¹ of Prague believes that hydrocephalus, where the skull is not enlarged, is sometimes owing to mechanical interruption of the local circulation from diminution or occlusion of the foramina at the base of the skull. He has observed cases of born idiocy, with atrophy of the right frontal and temporal lobes, accompanied with diminished power on the other side of the body.

The hydrocephalic head approaches the globular form, the antero-posterior transverse measurements being nearly the same. The widest circumference is often at the temples, where there is sometimes a perceptible bulging above the usual place of greatest width round the superciliary ridges. The back of the head is somewhat flattened, especially about the lambdoid suture, but the palate is not vaulted as is so common with genetous idiots, and the teeth are regular and often good. In asking the history of the case, the period of the closing of the fontanelles should, if possible, be ascertained.

In hydrocephalus the fontanelle is raised; in rickets it is depressed, and the head is elongated in the antero-posterior measurement. This, and other symptoms peculiar to rickets, are sufficient to preclude confounding the hydrocephalic with the rickety skull. I do not think that idiocy is often complicated with rickets. Most writers have declared that the intellect in rickets is precocious. Sir W. Jenner,² however, opposes this view. "Children, the subjects of extreme rickets, are almost always deficient in intellectual capacity and power.

¹ See *Oesterreichisches Jahrbuch für Paediatrik*, 1 Band. Wien, 1876.

² Quoted in the *Wasting Diseases of Infants and Children*, by Eustace Smith, M.D., etc. London, 1870, p. 114.

They are not idiots, they show no signs of idiocy, they resemble rather children of low intellectual capacity and power much younger than themselves."

The size of the head does not form a safe criterion as to the amount of injury done to the mental powers. Seguin, in his book on Idiocy, gives the case of a girl seventeen years old, whose head was 37 inches in the largest circumference at its summit, and $20\frac{1}{2}$ inches over the vertex from one foramen auditorium to another. The hydrocephalus commenced in the first year of life. "She began to speak when five years old. Her senses have always been acute, but she lost her sight five years ago. In 1865 she had spasms for the first time; since, she has grown weaker, and entered already into her period of decay. Though her brain was, we may say, drowned in an ocean of heterogeneous fluid, it kept up active communication with the world. She was cheerful, sung and talked until lately, used playthings as ordinary children do, liked to see bright objects waving before her eyes when she could see, and even now in cæcity she amuses herself by making papers rustle and move before her absent vision, muttering yet, though indistinctly, 'Hurrah for the colours,' 'Hurrah for the flag;' touching reminiscences of popular festivities which impressed at an earlier period."

We thus see that a very large quantity of fluid can accumulate in cases of chronic hydrocephalus without destroying the functional power of the brain.¹ A case has been recorded by Monro of a boy of eight years old, who preserved his memory although the head measured 2 feet 4 inches in circumference. There is also the well-known case of Cardinal, who lived till 30 years. From seven to eight pints of water were found within the cranium, the brain being collected at the base of the skull.

¹ *Die Pathologie und Therapie der Gehirnkrankheiten* von Dr. Rud Leubuscher, Berlin, 1854, p. 402.

Advancing chronic hydrocephalus may lead to total amentia without being directly fatal. Some instances of this kind are given by Esquirol, with his usual judgment in details and felicity of expression.¹

As Rokitsansky has observed, we ought to distinguish between acute or chronic hydrocephalus and hydrocephalus *ex vacuo*, in which fluid oozes out simply to fill up a reduction of the volume of the brain. This, however, is much more common in old age than in childhood. Hydrocephalus has been distinguished into internal and external. In the one, the fluid distends the lateral ventricles; in the other, it is between the brain and the membranes. Hydrocephalus externus alone is not very common; but there are some remarkable cases on record where a large amount of fluid was collected between the skull and the brain, the brain being placed at the base of the cranium. In these cases the intelligence does not appear to suffer so much. It is not unfrequent to have hydrocephalus externus and internus at once. Cruveilhier has remarked that the cerebellum generally escapes from the pressure of the effused fluid. As hydrocephalus leads to obtuseness and dementia rather than to excitement and mania, it is not commonly seen in the brains examined in asylums.²

¹ *Des Maladies Mentales*, Tome Second, Paris, 1838, pp. 326-329.

² I have, in several examinations of idiots, *post-mortem*, seen fluid effused under the membranes, *i.e.* hydrocephalus *ex vacuo*. Foerster states that hydrocephalus externus alone is rare, but it is not unfrequent to have hydrocephalus externus and internus at once. See *Handbuch der Allgemeinen Pathologischen Anatomie*, Leipzig, 1855; also Cruveilhier, *Anatomie Pathologique*, liv. 5, p. 4, and liv. 8, pl. 6. Professor Albers of Bonn, in a paper "Ueber die mit Wasserkopf verbundene Irrenseinform," distinguishes two kinds of chronic hydrocephalus—one where the effusion is in the lateral ventricles, the other where it is in the arachnoid sac. Dr. Albers finds that mental obtuseness and paralysis are the distinctive symptoms of the one, restlessness and mental derangement are characteristic of the other. See the *Allgemeine Zeitschrift für Psychiatrie*, Band xxii., Berlin, 1865, p. 110.

Differential Diagnosis.

Hydrocephalus is very likely to be confounded with hypertrophy of the brain, a much rarer malady.

Both diseases cause enlargement of the skull and squareness on its upper aspect, but there are certain differences in the shape which may help us to a distinctive diagnosis. In hydrocephalus we have to do with a fluid which, especially if external to the hemispheres, readily shifts its position and distends the skull at its most yielding parts. In hypertrophy we have to do with a solid body growing too quickly and pressing the cranium outwards along its whole surface of increase. Whether this increase takes place equally on every point of the hemispheres it is not easy to say, but in hydrocephalus the greatest circumference is at the temples, and there is generally a greater distance between the eyes, owing to the fluid insinuating itself between and distending the sutures formed by the frontal unguis and ethmoid bones, (Broca's *voussure des dacryons*).

There is also sometimes a small eminence where the wing of the sphenoid joins the anterior angle of the temporal bone (*voussure des pterions*) which is characteristic of hydrocephaly. In hypertrophy there is a bulging on each side above the superciliary region, and no increase in circumference higher up round the temples as in hydrocephalus.

Prognosis.

Hydrocephalic idiots are frequently of very feeble constitution and of a tuberculous or scrofulous diathesis; nevertheless, if in tolerable health, they are more educable than some other classes of idiots, and generally improve under training. They are, as a rule, soft, gentle, and trusting in their disposition, and somewhat awkward in their motions.

One pupil, who is recorded to have had fits at teething, which returned at four years old, and who has the hydrocephalic character of head, lost his hearing after being several years in the Institution, and gradually lost many of the words which he had learned. He was taught a number of figurative signs, and also to spell on his fingers, and although he had the additional disadvantage of obscurity of sight, having dimness of the cornea, resulting from ophthalmia, his progress was as well marked as that of any pupil in the establishment.

A few years ago I was introduced to the governess of a deaf and dumb school, who had a well-marked hydrocephalic head. She was quite deaf, but the nature of her duties is a sufficient proof that she had retained more than average mental vigour.

Hydrocephalus is not unfrequently combined with epileptic fits, and sometimes with paralysis, and in these cases the prognosis is not so good.

Dr. Leubuscher¹ has recorded some remarkable cases, where consciousness has reawakened shortly before death, which he explains by the supposition of a partial absorption of the effused fluid. I have an account of a girl believed to be idiotic from hydrocephalus, who was noticed to improve mentally during her last illness, which was apparently consumption. Dr. Abercrombie quotes the case of a man "who died of a pound of water in the brain, after having been long in a state of idiocy, but who a short time before death became perfectly rational."

Illustrative Cases.

The following cases have interesting features, though they are rather curious than typical. B. S. was fifteen years when admitted to the institution. He was the second child of eight. His father's brother died of phthisis. In his case the

¹ *Krankheiten des Nervensystems*, p. 22.

hydrocephalus had been complicated by fits, which lasted for six years. They ceased when he was seven years old, and he had none during the five years he was with us. The head was hydrocephalic both in size and shape.

MEASUREMENTS.

Antero-posterior	42 c.
Circumference (at usual place)	62
„ higher up	63
Transverse	40½
<hr/>	
Sum	155
From tragus to middle of forehead	14
From tragus to occipital protuberance	15



Fig. 8.

Hydrocephalic and Small-headed Imbeciles.

The teeth were not very good, and the palate somewhat high, like that of a young child, but not vaulted. The touch

and grasp were believed to be deficient. He was willing to oblige and do services, and his temper was generally placid and gentle, but he was furious when irritated, though, as he never injured any one, he might have been called, like Condorcet, the enraged sheep (*le mouton enragé*).

He learned to add together figures not above six, but got confused when the sum mounted beyond thirty. He improved in general intelligence and the use of his hands. He was taught to read words of two syllables and to spell a few of them. He could not learn to write. In the workshop he teased oakum, but, from his deficient grasp, never could learn to plait.

B. H., aged seven, the third child of a family of eight, all healthy. At the second month the head commenced to increase, and grew about half-an-inch a week, but never seemed to have increased since he was one year old. Had no fits during teething, but had one when three years old.

He was feeble, slender in make, and only three feet in height, though his head would have been large for a full-grown man.

MEASUREMENTS.

Antero-posterior	.	.	.	39½ c.
Circumference (usual place)	.	.	.	51
" higher up	.	.	.	55
Transverse	.	.	.	40
Sum				134½
From tragus to middle of forehead	.	.	.	12
From tragus to occipital protuberance	.	.	.	11

The palate was somewhat high. Teeth, $\frac{1}{1}$. He had lost the sight of the right eye, but could see a little with the left. There was a slight squint in the seeing eye. Paralysis had existed for a month in the left eyelid, and then passed away. The hearing was good, and he had the proper feeling in his fingers. He began to walk and speak when between three and four years of age. He was obedient and gentle. His

mother, who was a very sensible woman, thought that he possessed the intelligence of a child of three years of age. He had the staid, sober manners often seen with very delicate children. Was only two months under training. Owing to his weakness of sight, his education was conducted in much the same manner as that of the blind. He was taught to count up to twenty, and knew five letters of the raised alphabet when he left.

The following case has already appeared in the *Journal of Mental Science* for October 1873.

A. L. was sent to the Stirling District Asylum the 5th June 1871. As his friends did not come with him very little information about his history was obtained. Though supposed to have been an idiot, there was no exact proof of it. But it appeared from the certificates which accompanied him, that he had been in a state of the deepest fatuity for two years. When he first came into the Asylum, I am told he seemed to notice things, and showed signs of being scared or terrified. Dr. F. Skae thought he was weaker on one side, as if paralysed, and did not appear to see with one eye. During the month of August, when in charge of the Asylum in Dr. Skae's absence, I studied this boy's case. At that time he might be truly said to show no more intellect than a newly-born child. He possessed only the passive intellect, that is, he was sensible to outward impressions, but did not seem to draw inferences from them, much less recollect them. It could not be made out that he attended to sounds; but he seemed to notice lights. He had several bed-sores, and shrank and moaned when they were dressed; but he made no use of his hands, and had to be fed with a spoon. He never voluntarily altered his position. His knees were bent upon his body, and his arms were bent, the forearm upon the humerus. He remained in this condition, it might be said of vegetative life, for several months, requiring great care and

attention on account of the difficulty of feeding him, dressing his bed-sores, and arranging his position so that new ones might not form.

He died on the 22d September 1871, and the examination of his body was made on the day following by Dr. Skae and myself.

A. L. was 4 feet 8 inches in length; the girth round nipples was 2 feet 1 inch. The features were regular and not unpleasing. The measurements of the head were—

1. From glabella to occipital protuberance	.	31½ c.
2. Circumference	.	50
3. Transverse.	.	30½
		<hr/>
		122

The kidneys were slightly granular.

In the frontal part of the hemispheres especially there were found two ounces of fluid, and there were seven ounces in the lateral ventricles. The cavity of the ventricles was about four inches in length, and distended by fluid into bulging spaces of an hour-glass form, the pouches being in front and behind the corpora striata and optic thalami. The distinction between the posterior and lateral cornua was well nigh obliterated. The corpus callosum was much attenuated, as also the septum lucidum. The substance of the hemispheres was much hardened. On the fluid being removed the encephalon weighed 31 oz. The corpora quadrigemina were much smaller than usual. The anterior cerebral arteries were somewhat atheromatous.

This case illustrates the relation of acquired hydrocephalus, external and internal at once, with complete idiocy or fatuity. It ought to be remarked that the size of the head was not enlarged, nor the shape altered.

Pathological Anatomy.

Dr. Meynert gives some rules for distinguishing congenital from acquired hydrocephalus in *post-mortem* examinations. Hydrocephalus congenitus extends the lateral ventricles in their long diameter, and pushes back the posterior horn, so that it sometimes comes within a few lines of the surface; while hydrocephalus acquisitus increases the ventricles in their vertical and cross diameter. Sometimes the enlarged hollow in the posterior horn becomes filled up by the union of the lining of the ventricle on each side, leaving behind it a cavity containing serum and cysts. The medullary matter forming the walls of the ventricles is hard and tough in congenital hydrocephalus. One may also expect to find Wormian bones in the lambdoid and under parts of sagittal sutures.

The accumulation of fluid deranges the function of the brain both by stretching and pressure, and leads in the end to atrophy of the nerve substance and hardening of the medullary tissue.

The pressure is greater where, from closure of the sutures, the walls of the cranium are incapable of expansion.

CHAPTER X.

PARALYTIC IDIOCY.

CEREBRAL Apoplexy is not common with children ; but it is clear that paralysis associated with idiocy must have a centric origin. I have seen about twenty of such cases. They seem to improve mentally rather than physically, just as after an apoplectic shock, in which the intellect and powers of sensation and motion are impaired, the mental deficiency more readily disappears than the paralysis of sensation and motion. The mental powers could be increased by cultivation ; but the paralysed limb either did not acquire strength, or improved by slow degrees.

In the ordinary cases the paralysis is on one side of the body ; in two instances there was paraplegia of the legs.

Injuries to the brain causing paralysis may take place before birth as well as after it. Before birth the brain may suffer lesions, which would entail loss of life after birth. Hence the cases of paralytic idiocy where there is most destruction to the nervous tissue are congenital ones.

Schroeder van der Kolk has an interesting case of atrophy of the left hemisphere of the brain occurring in a female imbecile aged 27. She had from her earliest infancy been paralysed on the right side. The right hemisphere of the brain was quite healthy, but the left was much smaller. The difference of size extended to the base of the brain. The cerebellum was atrophied on the opposite side, that is, the right side, and below the decussation ; the atrophy of the spinal

cord passed also to the right side from the left hemisphere. The learned author has collected a considerable number of such cases where there was paralysis and diminution of one side of the body, and the opposite side of the brain was atrophied. This appears to be owing to inflammation either before birth or shortly after it. It is to be noted that in these cases when one hemisphere was completely destroyed, the paralysis is not total. The arm is generally more paralysed than the leg.

“With respect to the symptoms produced by this unilateral atrophy of the brain, they manifest themselves partly in the more or less defective exercise of the mental powers, and partly extend their influence, as I have shown at length in the above case, over the rest of the body. That in atrophy of one-half of the cerebrum, the psychical powers should be blunted or paralysed, might perhaps be assumed as generally true (and in fact, such atrophy is most usually met with in idiots); still it is far from being universally the case, for although in some instances mention is made of rather blunted mental powers, examples also occur where, with atrophy of one hemisphere, the intellectual faculties appear to be in their normal condition.”

He refers to a number of curious cases going to show that the loss of one-half of the brain may be combined with the perfect use of the intellectual faculties.¹

“Everything, in my opinion, depends upon the more or less healthy state of one hemisphere of the brain. If, as from the nature of the case seldom occurs, the inflammation and affection of the pia mater has not extended to this hemisphere, if the gray matter under the cerebral convolutions has here continued perfectly sound, there is no reason why this remaining hemisphere should not be able to act without impediment in

¹ Translated from the original, by Wm. Daniel Moore, M.D., T.C.D., etc. New Sydenham Society, London, 1861, pp. 150, 154, 155.

the exercise of those functions which are necessary to our mental powers, just as one eye sees as sharply though the other be lost. But where the gray matter is injured in both hemispheres particularly anteriorly, disturbance of the intellectual faculties will be inevitable."

Dr. Schroeder van der Kolk adds in a note :—" A remarkable case, where there was probably atrophy of one-half of the brain, is communicated by Wigan, in Forbes Winslow's *Journal of Psychological Medicine*. (See Damerow's *Algem. Zeitschrift für Psychiatrie*. Berlin, 1851, 8 b. 2 h. p. 279.) A boy, aged fifteen, had an inequality of the skull, as if the left half of the brain was cut off from above towards the ear, and was covered with a flat bone, so that the size of the left hemisphere could certainly not amount to more than one-third of that of the right ; at the same time he had a tottering gait, without being paralysed. This boy, who at first appeared to be quite idiotic and incapable of learning or understanding anything, with a stupid appearance, had, under constant instruction, three years later, grown into a strong lad, and his intellectual faculties were fully developed, while his brain was increasing in size, the left hemisphere, however, always continuing about one-third less than the right."

In another note he says :—" Since the publication of this essay I have six or seven times observed in living subjects this lesion, with shortening and atrophy, especially of the arm, opposite to the atrophy of the hemisphere. In the majority of cases a greater or less degree of idiocy existed ; perfectly unimpaired intellectual powers I never witnessed with this lesion."

In these cases there is often no inequality in the size of the skull on the atrophied side ; the calvarium is either thickened, or the empty cavity is filled up with fluid.

It does not seem to me necessary to make any distinction between those cases where the paralysis has occurred before

birth or in early infancy. Indeed it is sometimes difficult to ascertain whether the paralysis was congenital or not. I have had good opportunities of studying one case, where the paralysis must have begun before birth. The head is of average size, and appears symmetrical. There is no deficiency of the senses on either side, but the left side of the body is everywhere smaller than the right. The left arm is more paralysed than the leg, and shorter and much thinner than the sound one. The hand is bent upon the forearm, so as to make it quite useless. The left leg is thinner and shorter than the right, so that he limps, and cannot walk far without exhaustion. This boy, who is now thirteen years old, though decidedly imbecile, has a good deal of shrewdness and some humour ; but is slower at the school than one would suppose from his conversation. He can read words of one syllable, and is good at music, but deficient in arithmetic.

It not unfrequently happens that idiots cannot pronounce particular sounds or letters, or can pronounce them only in particular combinations. They often substitute one letter for another. One imbecile female, aged twenty-three years, cannot pronounce P, T, and K, using in their places, B, D, and G, the sounds which require an adjustment of the muscles of voice most nearly resembling the letters she cannot imitate, B and P being formed by approaching the lips, D and T being formed by approaching the tongue to the arch of the palate ; G and K are gutturals. In B, D, and G, the mouth is closed and opened more slowly than in P, T, and K, in which the action of the lips, tongue, and throat is more abrupt. This woman has the upper alveolar ridge so prominent that the lip does not stretch properly over it. It is often a difficult question whether these deficiencies in pronouncing certain sounds are owing to paralysis of different nervous filaments or motor centres of nerves, the remains, perhaps, of more extensive paralysis or nervous weakness.

In some instances this is no doubt the true explanation. We had, for example, a boy aged thirteen, partially hemiplegic, who was utterly unable to pronounce K at the beginning of a word, and sounded the letter G imperfectly. This was owing to deficient power in the muscles of the uvula and soft palate. On being asked to pronounce K with the mouth open, the uvula could be seen to be drawn to the side opposite to that on which the arm and leg were paralysed.

We have a child thirteen years of age who only began to speak when about nine years old. At present, though possessing more intelligence than many children who talk volubly, he cannot pronounce many sounds, such as K, Th, B. He always substitutes T for K, and P for B. This boy has a slight paralysis of the left side of the face. We have many other children who cannot pronounce particular sounds, in whom no other muscular deficiency appears to exist. There are, however, pupils in the house, who have special deficiencies of motion in the arms or legs, which appear at gymnastic drill.

One difficulty in regarding these as cases of deficient pronunciation appears to me that most of the muscles used in speech are the same as those used in chewing and swallowing the food; and if we assume paralysis in the one function, how do we account for it not taking place in the other? We know that in labio-glosso-pharyngeal paralysis, which has generally been found to be associated with disease of the pons, or of the corpora olivaria, the power of swallowing is impaired along with that of speaking. This consideration appears to me not without weight; but it ought to be borne in mind that the articulation of words demands a much finer adjustment of the muscles than in moving the lips or swallowing, and that a loss of power over the muscles generally commences with difficulty or hesitation of the speech before any

other motions are affected. This is well known to be the case in drunkenness and general paralysis of the insane. Stammering consists in the momentary inability to pronounce a sound or to connect it with other sounds, and is owing to deficiency in the co-operative power of the larynx with the movements of the mouth; but though stammering may be associated with chorea of other muscles, it often exists with perfect command of the rest of the muscular system.

Max Müller remarks:¹ "There is one class of phonetic changes which take place in one and the same language, or in dialects of one family of speech, and which are neither more nor less than the result of *laziness*. Every letter requires more or less of muscular exertion. There is a manly, sharp, and definite articulation, and there is an effeminate, vague, and indistinct utterance. The one requires a will, the other is a mere *laissez-aller*. The principal cause of phonetic degeneracy in language is when people shrink from the effort of articulating each consonant and vowel; when they attempt to economise their breath and their muscular energy."

This species of indolence is very common with idiots. They alter difficult sounds for others which they can pronounce more easily, miss out articles, and shorten words; the tendency being to reduce all words to one syllable.

A singular analogy may be found between the aberrations of idiots from common speech, and those which time has brought about amongst peoples who once spoke a common dialect, as in the Aryan and Semitic families, each from a separate *Ursprache*, and the better-known example of the derivation or corruption of the different Romance languages from the Latin. It appears, as Max Müller argues, that in the end we must come to a physical explanation in the

¹ *Lectures on the Science of Language*, by Max Müller, M.A., etc. London, 1864, p. 176.

structure of the organs of speech. Certain races prefer certain sounds, because they can utter them more easily ; and this must be referable to a facultative difference of nervous or muscular energy giving greater or less power to particular muscles, so that some modifications of the expelled air of the chest are more easily made than others by the majority, and consequently such-and-such a pronunciation is preferred. In this way whole nations have given up using sounds common in the language of others, just as idiots avoid or cannot pronounce certain sounds.

The Latin *aqua* became *agua* in Spanish, *eau* in French, and *apa* in Roumanian. From the same root the Romans formed *sto*, the Greeks *ιστημι*. Many nations find it difficult to begin a word without a vowel, and so the Welsh changed *schola* into *ysgol*, the French into *école* ; the Spaniards in Peru said *escola*. The Hindustanis always say *ischool*, *istable*, when they have to use such words. The Chinese have no R in their language ; the Mexicans had no B, V, F ; the six nations amongst the American Indians have no labials. The Arabians have sounds which we can scarcely imitate in their *khe* and *ghain*. The people of the Society Islands, in trying to pronounce Captain Cook's name, said *Tute*, exactly what several of our children would say. In like manner, I could find counterparts to many of these linguistic variations in cases of idiots, who in speaking interchange certain letters or sounds, but it would probably be tiresome to pursue the subject.

The physiologists of the day generally believe that there is a separate centre in the brain for the faculty of language, a view rendered probable by what has been observed in aphasia. They are not agreed as to the site of this faculty, nor to its precise character. Some place it in the posterior third of the inferior frontal convolution ; others in the operculum ; others in the island of Reil, or thereabouts. Moreover, it is very

difficult to make physiological experiments and pathological facts agree. Nothing indeed is more difficult to explain, than the often contradictory phenomena of paralysis viewed in connection with brain lesions, as has been very well shown by Dr. Brown Sequard. Meynert's view, that there is one centre for words, and another for musical sounds, seems to me in accordance with what has been observed in idiocy. With us, children who cannot speak are sometimes able to hum tunes.

What Duchenne calls pseudo-hypertrophic muscular paralysis is sometimes associated with functional troubles of the brain in different degrees. Drs. Langdon Down, Kesteven, and Benedic, have all described cases of muscular hypertrophy, with loss of muscular contractility, to the electric stimulus occurring in idiots; but such cases are so rare that the connection of the two diseases may after all be accidental.

Illustrative Cases.

K. U., ten years old on admission, was the eldest of three children. I could not learn anything about his birth and parentage which threw light upon his malady. Nothing particular was noticed about him till the eighth month, when he was believed to have become paralytic, and had always been very delicate since. The measurements of head, taken in 1871, were—

1. From glabella to occipital protuberance	.	31½ c.
2. Circumference	.	51
3. Transverse	.	33
Sum	.	<hr/> 115½ c.

It required very little attention to see that there was partial paralysis of the arm and leg on the left side. The arm was scarcely ever used; the leg was weak, and dragged after the other. There was also some paralysis of the face on the

right side. He slavered a little from weakness of the right lip, and was unable to pronounce the letter K. If asked to say "cask," he would say "as ;" if asked to say "cuddy," he would say "uddy," and so on. He also pronounced the letter G imperfectly, and his voice had the peculiar quavering character often met with in paralytics. When he spoke it seemed as if the organs of speech were not under ready control. The inability to pronounce the gutturals properly was, as already explained, owing to deficient power in the pharynx and soft palate. On being made to try to pronounce K with the mouth open, the uvula was seen to be drawn to the side opposite to that on which the leg and arm were paralysed. Sensibility was deficient on the paralysed side, both to ordinary impressions and to electricity. He could use a spoon, and grasp with the right hand. During the time this boy was in the institution, which was about two years and three months, he seemed to improve in general health. Both motor power and sensibility increased on the paralysed side, and he learned to use the right hand with more expertness. He could write half-text on a slate ; but was never able entirely to dress himself. He walked better, and could go farther than when he came. He was regularly exercised in pronunciation, and learned to speak better. He learned to read words of one syllable, and could count and add small sums together. He picked up some notions in physical geography, such as the shape of the world and its relation to the stars, and seemed to have some power of attaining to general and abstract ideas. He was attentive, anxious to learn, of an affectionate disposition, with a strong sense of duty, and was good-tempered, though sometimes obstinate. He appeared to me to have the intelligence of a child of five years of age. He was regarded as a pupil likely to improve mentally, but who would always remain physically weak and incapable. K. U. was taken ill in the month of January of bronchitis. There was great prostra-

tion throughout the illness, which only lasted five days, when he died in a comatose condition.

The right lung weighed $17\frac{1}{4}$ oz. ; the left, 16 oz. ; the heart, $4\frac{1}{4}$ oz. ; the liver, 29 oz. ; the right kidney, 3 oz. ; the left kidney, $3\frac{1}{4}$ oz. ; the spleen, $4\frac{3}{4}$ oz.

The examination was made two days after death. There were old adhesions of the pleura on the left side, but none on the right. Both lungs showed lesions of acute bronchitis, and some pneumonia at the base. In both lungs there were deposits of miliary tubercle the size of barley-corns. The bronchial glands were enlarged and of a cheesy consistence. There were white deposits of miliary tubercle found in both kidneys.

HEAD.—The encephalon weighed 48 oz. ; the cerebrum, 42 oz. ; the cerebellum, medulla, and pons, 6 oz.

The skull-cap was very thin, the sutures open. The cerebral hemispheres were evidently flattened. The gray matter paler than usual. The lateral ventricles were much distended with fluid ; about two ounces were taken out and measured, but some escaped. On the roof of the left ventricle, above the posterior corner, there was a spot of white softening about the size of a walnut. No traces of apoplectic clot could be found in any part of the encephalon. There were deposits of tubercle along the course of the middle cerebral arteries.

It seems to me probable that the softening in the brain, as well as the amount of fluid in the ventricles, was increased during the boy's illness, which, however, was of short duration. No change had been noticed in his symptoms before the bronchitis ; but he had been treated for a milder attack about three weeks before.

T. N., eight years old ; a seven-months' child. Mother had a miscarriage through strain. Very small when born ; did not at first suck ; fed with a spoon, and kept in a box at the fireside for several weeks. Pulls herself about with her

arms ; can find her way down a flight of stairs, and sometimes across the street following other children. She now asks people to carry her across. The palate is vaulted, teeth $1\frac{3}{2}$, irregular, not very good. Squints with left eye. The paralysis is worst in right leg.

MEASUREMENTS OF HEAD.

Antero-posterior	.	.	.	.	33 c.
Circumference.	.	.	.	.	47
Transverse	.	.	.	.	29
			Sum	.	109
From tragus to middle of forehead	.	.	.	.	12
From tragus to occipital tuberosity	.	.	.	.	11

Fontanelles long in closing. Is fond of music ; can count up to twenty ; knows the use of money ; never could learn the alphabet entirely. Frank, good-natured, and confiding. Is much neglected. Her mother, who is a washerwoman, leaves her in the common stair all day when she is out at her work.

X. S., eight years of age. The youngest of eight children. The rest are all alive and healthy. When six months had an illness of which no very distinct account could be given, except that he was not thought likely to recover, and could scarcely be got to swallow. His mother is dead, and the history of the case was given by his father and his eldest sister. After coming out of this illness he was noticed to want the power of the right arm and leg. Laugh somewhat unequal, it brings out a slight paralysis in right side of face ; slavers from the right lip.

MEASUREMENT OF HEAD.

Antero-posterior	.	.	.	.	36 c.
Circumference	.	.	.	.	53 $\frac{1}{2}$
Transverse	.	.	.	.	34
			Sum	.	123 $\frac{1}{2}$

The head appeared to the eye to be unequal. On measuring from the outer angle of the orbit to the middle of the

vertex the distance was 14 c. on the right side, and but $12\frac{1}{2}$ on the left side. This was owing to an unusual flatness of the frontal bone a little in front of the coronal suture. There was also a slight flatness on the posterior part of the left parietal bone, and an irregular contour of the left circumference, as shown in the engraving.

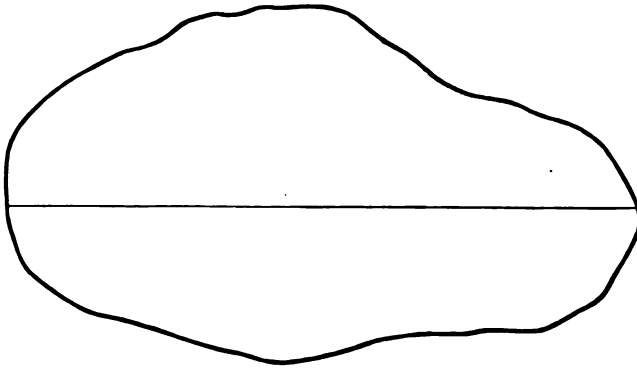


Fig. 9.

Horizontal section of head of X. S., taken about the level of supra-orbital ridge and the tuberosity of the occiput, by Dr. Clapham, with his *Conformateur*. This gives the circumference of the head on a reduced scale.

Can be sent little messages. Does not know how to spend money ; but lives in a solitary place away from shops. Could tell if any accident happened to him ; merry and good-natured ; has never received any training.

Dr. Klebs, in an article already quoted, gives an account of a grown-up idiot who was employed to frighten birds from the corn. He could speak a few words and was gentle and docile. The left arm was shorter and thinner than the right, and the left leg was also thinner. There was a want of symmetry in the face or head. On examination after death the right frontal lobe up to the fissure of Rolando and part of the temporal lobe were found to be wanting, and in their place a cavity with smooth walls filled with fluid bounded below by the optic thalami.

The morbid lesions in this form of idiocy are of a diversified character, comprising whatever causes extensive destruction of the hemispheres generally on one side; for such damage on both sides would likely be fatal. You may thus find atrophy, softening, hæmorrhage, and even hydrocephalus, where the pressure, owing to local causes, falls greatest on one hemisphere.

Treatment.

Though the treatment of paralytic idiocy is mainly educational, something can be done to improve the condition of the more or less paralysed limbs. Benefit may be derived from persevering rubbing and vigorous shampooing in the course of the returning circulation, and if the limb does not stir under the influence of the will, by commencing the process through passive movements. This method of treatment, advocated by Ling and his followers,¹ has in my opinion a more scientific basis than the administration of what have been called nerve tonics. The practitioner should be warned against the abuse of tenotomy. I have seen several cases of club-feet connected with paralysis of certain muscles or sets of muscles, sometimes accompanied with shortening of the bones, in which tendons have been cut by surgeons, especially that class who call themselves pure surgeons because they are entirely free from any knowledge of medicine. Such operations in paralytic idiocy do harm, but never any good, the only result being a cut difficult to heal in a limb whose vitality is unusually low.

Electricity ought to be tried, though I cannot say that I have ever been able to trace any very decided benefit from its use. According to Marshall Hall's well-known maxim, the

¹ In a little book by Dr. Roth on *Paralysis in Infancy, Childhood, and Youth* (London, 1869), there is some useful practical advice about this mode of treatment.

electro-muscular contractility is greater where the paralysis is of a cerebral origin. Authorities are not agreed whether the continuous or interrupted current should be preferred, nor can I say from my own experience which is the best in paralysis connected with idiocy, though I have tried both. Faradisation is believed to be contra-indicated where there is rigidity of the paralysed muscles. The interrupted current being painful, its habitual application often frightens and agitates the child ; and on the whole I am disposed to prefer the continuous current. Rapid improvement cannot be hoped for, patience must be exercised, and a long trial should be given. The galvanic current should not be applied for more than from five to fifteen minutes, it being ascertained that a long application exhausts the power of the nerve, so that it can no longer transmit the action when it is suffered to rest. I have seen marked benefit from long-continued exercise. Perhaps this is the reason why paralysis of the leg generally improves more than that of the arm, as the patient cannot use the one leg without also using the other, whereas the paralysed arm is likely to be left without any exercise. Imbeciles in general are not fond of exertion, and habitual walking is very unpleasing to them when one limb is weak. We had a boy in the house who bitterly complained of being taken out to walk, and used all sorts of devices to be left behind. He even tried to run away, went to the railway station, and seated himself in a carriage to go home. When asked for his ticket, he said he was a gentleman who had been robbed of his purse in the Torwood. This boy's walking powers in the course of time increased so much that he could hobble five or six miles. On one occasion at a picnic he set off to walk home a distance of four or five miles, not wishing to wait for the carts. Other examples of improvement might be cited, all flowing from continued exercise and amelioration in the general health.

CHAPTER XI.

CRETINISM.

Its Nature.

WHILE little of a scientific character has been written on sporadic idiocy, the literature of cretinism is very extensive.¹ In the work of Saint-Lager there will be found a list of most of the publications, in which the subject has been treated in a formal manner which fills twenty-two pages. The definition

¹ The following works on Cretinism are the principal authorities for the statements made in this chapter :—

Rapport de la Commission de S. M. le Roi de Sardaigne, pour étudier le Crétinisme. Turin, Imprimerie Royale, 1848.

Traité du Goutte et du Crétinisme, par B. Niépce. Paris, 1851.

Beobachtungen über den Crétinismus: Eine Zeitschrift herausgegeben von den Aerzten der Heilanstalt Marienberg. Tübingen, 1850, 1851, and 1852.

Die Cretinen-Heilanstalt auf dem Abendberg, von Dr. Guggenbühl. Bern und St. Gallen, 1853.

Untersuchungen über die Entwicklung des Schädelgrundes im Gesunden und Krankhaften Zustande und über den Einfluss derselben auf Schädelform, Gesichtsbildung, und Gehirnbau, von Rudolf Virchow. Berlin, 1857.

See also *Gesammte Abhandlungen zur Wissenschaftlichen Medicin*, by the same author. Frankfort, 1856.

Études Sur les Causes du Crétinisme et du Goutte endémique, par le Dr. J. Saint-Lager. Paris, 1867.

Deuxième Série d'Études Sur les Causes du Crétinisme, par le Dr. Saint-Lager. Lyon, 1868.

Enquête sur le Goutte et le Crétinisme, rapport par le Docteur Baillarger. Paris, 1873.

Études sur le Goutte et le Crétinisme par Max Parchappe. *Documents mis en ordre et annotés*, par le Dr. L. Lunier. Paris, 1874.

The investigations of Lombroso which I have used are mainly taken from the *Rivista Clinica di Bologna* (Fasc 7 Luglio 1873, and Fasc 11 Novembre 1873). See my report in *Edinburgh Medical Journal* for August and September 1875.

of cretinism reposes more upon its etiology than on its pathology ; for in our imperfect state of knowledge, etiology sometimes guides us to true pathology, and pathology leads us back to new views on etiology : as difference in the cause implies difference in the effect, and a different effect implies a new cause, or combination of causes.

Causes and Diffusion of Cretinism.

Cretinism is an endemic disease, its areas being generally capable of clear definition. It is very common in the Alps, where it has attracted much attention and been the subject of diligent and persevering inquiry, both from many distinguished scientific and medical men and from commissions appointed by the governments of Sardinia, France, Austria, and Switzerland.

According to Baillarger, in the department of the Hautes Alpes, the number of cretins and idiots was 2747 to a population of 122,117, about 22 per 1000, the number of people with goîtres being 111 per 1000. In Haute Savoie the number of cretins and idiots was 4346 to a population of 273,768, that is 16 in the 1000, the number of the goîtreux being 134 per 1000. In the Arrondissements of Briançon and Embrun in the Hautes Alpes, the proportion of cretins is alone 35 per 1000.

In the Hautes Pyrénées the proportion of cretins is 6 per 1000 ; in the Ariège 4·5. The number of cretins and idiots in the whole of France is given as 122,776. These French statistics, collected by a commission appointed in 1861, but whose labours were not finished till 1870, are the latest and probably the most trustworthy. A few more figures may be added to show the frequency of cretinism on other aspects of the Alps. In Upper Austria, Saint-Lager says, there are 3703 cretins to 718,098 inhabitants, that is one cretin to every 191 of the population. In Styria, 5992

cretins to 982,437 inhabitants, according to Koestl; but Saint-Lager thinks these statistics so incomplete that the number should be doubled. In Carinthia there were 3068 cretins to 336,726 inhabitants, that is 1 to every 110. In the province of Aosta there were 2180 cretins and 3554 goitrous people, that is 27 cretins in the 1000. According to Parchappe, in the commune of Gignod in Aosta there were 268 cretins per 1000. Cretinism is met with in every quarter of the globe—amongst the Andes as well as in the Himalayas, the Pyrenees as well as the Crapak Mountains, in Chinese Tartary, Sumatra and Java, in the isthmus of Darien, in the Rocky Mountains of North America, in Madagascar, and many other places. It is not confined to the valleys of mountainous countries; but occurs, though in less frequency, in the plains watered by the rivers which flow from the mountains where it prevails. Thus it is found along the upper course of the Danube and the Rhine in Austria; Alsace, and the Black Forest of Baden, in the plains of Lombardy, and in parts of the Terai at the foot of the Himalayas; in some villages of the Punjaub, and in the plains of Parana in the Argentine Republic. In the island of Niederwörth, near Coblenz, out of 750 inhabitants there were 131 cretins. A few cases of cretinism are met with in Derbyshire, Somersetshire, and the west of Yorkshire, accompanied as usual, with a larger proportion of goitrous people. In fact there are few countries in the world where cretinism is entirely absent. It is, however, most common in shut-up valleys, and has a close connection with goitre. Nowhere does cretinism occur where goitre is absent,¹ but goitre may occur where cretinism is unknown or rare.

¹ In the Sardinian Report, 42 communes were returned out of 261 where there were said to be cretinism without goitre, but out of the 311 returned as cretins 130 actually had goitre on their own necks. Moreover, it is not said whether the remaining 125 so-called cretins were actually born and brought

The geographical area of cretinism occurs within the wider area of goitre. It would appear that the cause which produces goitre alone when it is feeble, produces cretinism when it acts in greater intensity. Goitrous persons are of course not always cretins; nor have all cretins goitre; nor does the size of the goitre indicate the degree of fatuity of the cretin. Those who imagine that goitre and cretinism have only an accidental connection with one another ought to answer the striking arguments of Saint-Lager. "No one contests," he says, "that wherever cretinism is, endemic goitre is so too, and most cretins, two-thirds at least, have got goitres. Can any one cite^d so striking a coincidence between diseases of a different nature? How can physicians be astonished that all goitrous people are not cretins, and *vice versa*, when they observe every day a variability as frequent in the evolution of other diseases? Does any one doubt the correlation which exists between the swelling of the spleen and ague, although every one who has the fever has not an enlarged spleen? Do they think that one cannot have a true rheumatism without heart-disease, a cholera without collapse, a typhoid fever without spots, and a scarlet fever without anasarca?" Saint-Lager holds that they have much exaggerated the number of cretins without goitre. One reason of this is, that in countries where goitre is very

up in the communes. Dr. Lunier remarks: "L'enquête française de 1864 n'a pas confirmé ces résultats." (Parchappe, *op. cit.*, p. 5.) In fact, many of these returns are made by persons who have no proper idea of what a cretin is. In the Alps we may be sure that most cases of sporadic idiocy will be returned as cretins. Saint-Lager quotes the following anecdote from a newspaper:—The maire of a village got one day a table to fill up of the infirm persons in his commune. He filled up from memory the hunchbacks, cripples, blind, and insane persons, but stopped at the heading of cretins. The maire-adjoint and the secretary were consulted, but were both at a loss. A gendarme came in, whose opinion was asked. "No doubt it is a misprint," said that officer. They want to know the number of Christians (Chrétiens) in the commune." This explanation being accepted, the maire wrote under the heading of cretins, "Nous le sommes tous" (We are all so).

common it is only large tumours that are taken note of. In some cases too, the swelling of the thyroid grows inwardly or laterally, embarrassing the respiration without making swelling readily apparent to the eye. Müller, who has attentively examined the cretins in Hesse, has seen none totally free from thyroid hypertrophy. Mittermeyer has made the same remark of the cretins of Pinzgau, and Millner of the cretins of the town of Salzburg. Malacarne says that in the valley of the Aosta a cretin without a goitre is a very rare thing. Many books have been written on the causes of cretinism, some of which I have read ; but, to use the words of Omar Khayam,

"I heard great argument
About it, and about : but evermore
Came out by the same door wherein I went."

There are close valleys where more than half the children born become cretins. Guggenbühl speaks of a farm in Piedmont where, for a hundred years, the children of healthy parents have always become cretins, and of another farm in the neighbourhood where two brothers had seventeen children who all became cretins. There are springs in Switzerland and Savoy which give goitre to any one who drinks the water. One might think that by using all the analytical means of science, by examining the geological formation, experimenting on the air and analysing the water, the stupefying poison might be found ; but as yet it has eluded every search.

The specific cause of goitre and cretinism, something in the water, air, or earth, or in all of them, like the malaria of intermittent fever, is only known through its effects on the human body. It has not yet been isolated either by inference or experiment, and, indeed, we know less of it than about the character of paludal miasma. The accumulation of decaying vegetable matter in certain situations, and at known temperatures, will surely cause the appearance of ague

amongst those dwelling near ; but there are many shut-in valleys, resembling in all respects the usual haunts of cretinism, where, nevertheless, it is never heard of. The analogy between the malaria of paludal fevers and the cretino-genetic miasm is so striking, that it may be left to the reader acquainted with medicine to trace it out.

I might fill a hundred pages with discussing the various theories about the causes of goitre and cretinism. The reader will find a telling refutation of them all in Saint-Lager's book. On the ruins of other men's theories the ingenious Frenchman erects his own, that goitre and cretinism are owing to the presence of sulphate of iron in the water, but this in its turn is refuted by Baillarger.

Cretinism is commoner on rocks of magnesian limestone, though it is also known to be rife in valleys where the primary or schistose rocks are the main or only formations. It is not hereditary in the constitution of the parent. A man and his wife with hereditary tendency to insanity cannot avoid transmitting the vice to the children, should they flee to the ends of the earth, but parents leaving the valleys of the Aosta, or the Isère, or the Valais, for places where cretinism is unknown, leave behind them the danger of having cretin children. On the other hand, the intermarriage of goitrous parents, or where the man or woman is cretinous, as sometimes happens, increases the danger of cretinism in the children.¹ It has been known from time immemorial in the Valais, as well as the canton of Berne and elsewhere, that

¹ The general rule is that heredity only appears as an assistant and secondary cause of cretinism, but there are a few rare cases cited which seem to indicate that when the constitution of the parents has been deeply infected with goitre or cretinism they may beget goitrous or cretinous children, even after living some years in healthy localities. In all cases the tendency to goitre and cretinism disappears in a generation or two under the influence of a healthy climate, and also, as Baillarger remarks, of intermarriage with unaffected persons. See Baillarger, *op. cit.*, p. 298, and the note appended by Dr. Lunier to Parchappe's work, p. 195.

mothers who pass the last months of their pregnancy, and bring up their children for several years at high elevations, where cretinism is unknown, can thus save them from the disease. Many also send their children from the valleys to the higher grounds to be nursed. According to Baillarger this custom is still continued, and its efficacy has never been questioned. He gives an instance where a child born with a goitre, considered to be a mark of decided predisposition to cretinism, and whose father and mother were goitrous, who was saved from cretinism by being brought up high on a mountain. Though he still has the goitre he became a distinguished magistrate. According to the Count Rambuteau,¹ Prefect of the Simplon in 1813, many children remain perfectly healthy for the first five or six months of their lives, frequently as long as three or four years, when suddenly symptoms of cretinism appear, and rapidly progress.

Forms of Cretinism.

The morbid cause of cretinism and goitre is believed to exert its influence not only upon individuals here and there, but upon the whole population, or a great part of it, modifying the stature, the moral character, the prevalence of crime, the pronunciation, and the hearing. From statistics given, Lombroso concludes that the standard of height is lower in the general population of the districts where goitre and cretinism are rife. He thinks that in those places there is a greater tendency to acts of violence, extravagant behaviour, and cunning. In Switzerland there is a proverb that stammering in the parent announces cretinism in the child. Deafness also prevails in these districts. In Aosta there is a deaf mute to every 197 of the inhabitants ; in Sondrio 1 to every 365.

¹ This valuable paper, which Esquirol quoted from the MS., was published in the *Annales Medico-Psychologiques*, 1871.

Dr. Meyer Ahrens¹ observes that everywhere, beside the more pronounced forms of cretinism, "we find individuals who present only one of the signs of the malady; the intelligence alone, or the hearing and speech are defective, or they have a goitre, or are simply ill made or of cretinoid appearance. In short we meet with a greater or lesser number of individuals with some of the less marked traits of cretinism. I class all these lesions together as inferior forms which, when fully developed, appear as cretinism. In the countries where cretinism, in the strict sense of the word is endemic, we find localities where those inferior forms of cretinism appear, idiocy, deafness, and goitre. At the same time, in other countries or places where cretinism proper is readily met with, there are nevertheless in a certain number of persons, weakness of the intellect, deafness, and goitre in an endemic form, and occurring in an unusually large proportion to the population. From this it clearly follows that if we cannot put within the domain of cretinism every deaf or goitrous person, every idiot and every little deformed man, nevertheless, cretinism proper, together with the less marked forms, or different degrees, may in certain countries or localities arise from the same causes; hence we cannot separate these different forms without artificially dividing what in nature is one morbid family.

Symptoms.

It is generally believed that some children are cretins at birth. These have often a small goitre about the size of a nut. According to Dr. Trombotto the born cretin has generally a large head, irregular in form. The fontanelles are larger than usual; the hair thick, and descending to meet the eyebrows, so that the forehead seems small. The eyes are dull

¹ *Aperçu de la Distribution géographique du Crétinisme dans la Suisse*, 1853, quoted in Parchappe, p. 35.

and almost always half shut, and the eyelids, heavy and swollen, have only a few eyelashes. The skin is often livid during the first month, and then becomes yellow. The nose is flat; the mouth large; the tongue big and thick, and often protruded from the lips, which are large and flabby. Their cries are hoarse and unnatural, they take the breast in a sluggish manner, but never refuse it, and never appear satisfied. None of these symptoms are fixed, and infantile cretinism is seldom noticed before the sixth or seventh month. The children then, according to the authors of the Sardinian Report, present the following symptoms:—Sometimes the growth of the body makes very little progress. At other times, though apparently in good health, they are fat and puffed out and very weak. The colour of their skin is sometimes brown, sometimes an ashy yellow, sometimes natural. The head is constantly big; the fontanelles widely open; sometimes all the sutures disjointed as if by hydrocephalus. They seem to open their eyes with reluctance; their look is languid and stupid; their physiognomy remains always the same, unchanged by fear, joy, or impatience. They eat a great deal, and with eagerness; they pass the rest of their time in sleeping, and are not easily awaked. Their lips are thick and swollen, and generally remain gaping. Their nose is short and broad. They seldom weep, and their cry has something hollow and peculiar about it. The belly is swollen, and gives a dull sound to percussion. The limbs are generally small and feeble, but sometimes quite normal. The neck is large and thick; in many cases deformed with a goitre. In place of the growing intelligence of childhood the cretin is dull and apathetic. As he gets older the general slowness of his growth becomes more manifest. Teething, which always commences later, usually goes on for several years longer, and is often accompanied with an unpleasing salivation, and not unfrequently with alarming eclamptic fits. The teeth are

generally irregular, distant from one another, crooked, or fixed in their sockets in an unsymmetrical manner. They frequently blacken, decay, and fall out, often never to be renewed. The cretin can seldom hold himself upright before the second or third year, and cannot generally walk before the sixth or seventh. Speech commonly comes later than walking.

Symptoms of cretinism, in most cases, appear before the fourth year, and rarely visit a child after it is seven years old ; but Guggenbühl asserts that there are places where men have become cretins who came to live in them after being as old as forty years. Baillarger,¹ too, tells us that, on an inquiry made by the Austrian government in 1844, at Syrnitz, near Klag-enfurt, it was stated, amongst other things, that the proprietor of the estate of Abbeck, which he had lately purchased, came to live there with his wife, who was in good health. She died goitrous and half a cretin, and the proprietor, with his second wife, have also passed into a state of demi-cretinism. The five children by the first wife are idiots. Their necks are thick and their bodies stiff. The children by the second wife, one of whom is two years old, the other one year, are still in good health, though likely to follow their elder brothers, who were also well in their first infancy. Besides the general torpor of the bodily functions, and the hebetude of the intellectual faculties, there are deficiencies of hearing and of speech which increase with age.

In describing the appearance of cretins, authors have collected deformities from different cases, so as to make up the portrait of a monstrous creature, which assuredly is rarely to be met with. The most characteristic traits which occur in cretins are the stupid, monotonous facial expression, the nose depressed at its root and broad at the wings, the remarkable distance between the eyes, occupied by a hollow,

¹ *Op. cit.*, pp. 32, 33.

from which the root of the nose seems to issue; the eyes dull and heavy, the broad zygomatic arch, the wide mouth, the broad lips, and the thick tongue. Virchow gives as a characteristic that the skin of the cretin is too large for the body which it loosely covers. The teeth are generally bad, and soon come to decay; sometimes first teeth are not renewed. Cretins rarely attain the usual height. Many are dwarfs, no higher than three feet. The limbs are often disproportioned, the walk awkward—what is called the “Bären-gang” or bear gait, in the German parts of Switzerland. The neck is generally short and thick, and from one-third to two-thirds of cretins are said to have goitre.



Fig. 10.

- Female Cretin, aged 19. Valley of Aosta.

The portrait of the female is taken from a lithograph in the Sardinian Report. She was a “demicretine” living in the valley of Aosta. She measured 39 inches in height, was a little deaf, and of sufficient intelligence to speak about her

wants and usual occupations. She never presented any signs of puberty.

Franz Nöth is copied from a beautiful lithograph in Dr. Karl Stahl's Memoir. He says that it is the most distinct example (das ausgeprägteste Exemplar) of cretinism which he could find in his district. This boy's mother was subject



Fig. 11.

Franz Nöth, Bavarian Cretin. Aged 15.

to violent fits of passion. While nursing him she had a violent quarrel with her husband and fell down insensible, after which the child had several fits or spasms resembling trismus. She had four children, three of whom were cretins. He was deaf and dumb and very fatuous. Hands and feet constantly cold. "Die Füße sind Platfüsse, seine Genitalien sind sehr unentwickelt und unbehaart."

These two portraits give what are called the typical traits

of cretinism, but it would be a great mistake to imagine that cretins have positive and easily detected characteristics, or that all or most of them can be included under a general description of their personal appearance. Some cretins are not different from ordinary people in their looks, except perhaps by having a goitre. Though most of them are short of stature, often no higher than a mètre, some of them are of the usual height, and a few are even taller. In the Sardinian Report two cretins are mentioned who were six feet high. Lombroso¹ has described a variety of cretins whom he terms Calibans, with small heads, stature above two mètres (= six feet six inches) strong beard, and no anomalies in the bones and thyroid, which, however, were seen in their blood relations. They were active in their motions, and wild and unruly.

As an example of this, Lombroso gives a family of eight in Maleo. G., 35 years of age, has a head of 411 millimetres = 16 inches 2 lines in circumference, with a bodily height of 2590 millimetres = 8½ feet. This gigantic idiot eats every day twelve pounds of polenta. F., his brother, measures 2½ mètres, = 7 feet 8 inches; the circumference of his head is 42 c. = 16½ inches. His sister R., is also 2½ mètres high, and the circumference of her head is 45 c. = 17 inches 9 lines. Truly a singular family!

Ferrus,² who studied thirty female cretins at Sion, in Switzerland, says they offered two types. The second type was distinguished by the length and slenderness of the body, the gracefulness of the limbs, the flexibility of the neck, and the angular form of the face, and so on, in fact the very opposite of the first type, which was the orthodox pattern. When you come to two types your generalisation is cloven asunder.

¹ Quoted by Dr. Kind, über das Längenwachsthum der Idioten, p. 21. I have sent for the work of Lombroso, but it has not yet come. There is, however, no grounds for doubting the correctness of Dr. Kind's citations.

² Baillarger, p. 41.

Professor Lombroso made a study of twenty-three cretins, fourteen of whom were alive, and nine dead. He gives two very careful tables of measurements, but it is much easier to record the figures than to generalise the results. In one case we have a peculiarity, and in another the exaggeration of the very opposite tendency. Sometimes the stature is low; sometimes high; sometimes the head is of the normal size; sometimes it is larger than usual; at other times less. Deformities are very frequent; but they are of all kinds, so that one is inclined to believe that cretinism is owing to miasmatic intoxication during the foetal state, which sometimes accelerates and sometimes retards the development of the organism. Nevertheless, Lombroso thinks that he can make out a ruling type, which has the following features: "The weight is generally less than usual; the colour of the skin darker; the muscular force less; there is abundance of hair on the forehead; there is irregularity in the incisors and in the production and number of the teeth; the testicles are often wanting; the ears are longer; and the face smaller."

Only in three cretins was there an approach to microcephaly. "The most constant characters, which only failed in two cases, were the horizontal position of the basilar process; in four there is no occipito-basilar angle, but a straight line. This is the opposite to what we have in the negro, in whom the basilar bone slopes more than in the white man, and different from what we have in the anthropoid apes. The basilar process in its inferior and pharyngeal surface is concave in the cretin skulls. These are appearances which are only to be seen in the lowest species of monkeys and in quadrupeds. Finally, the hard palate is flattened, as in quadrupeds or in the foetus of the fourth month."

We add Lombroso's tables for the benefit of those who wish to make a close study of cretinism.

TABLE I.

	Fontanetti, Madical Cretin.	Cocchi Francesco.	Male Cretin.	Panighini, Suicidal Cretin.	Cretinous Woman.	Cretinous Woman.	Cretinous Man.	Cretinous Man.	Cretinous Boy.	Angela Pretti.	Magnani Maria.	Mirabello, a Cretin of 22 years.	Male Cretin of 17 years.	Camilloci Antoni, Male Cretin of 47 years.
Age - - - -	50	37	47	35	30	29	28	40	12	24	23	22	17	47
Height - - -	Met. 1-35	Met. 1-32	Met. 1-48	Met. 1-68	Met. 1-32	Met. 1-31	Met. 1-26	Met. 1-53	Met. 1-10	Met. 1-25	Met. 1-53	Met. 1-50	Met. 1-44	Met. 1-50
Weight - - -	Kil. 37	Kil. 35	Kil. 52-70	Kil. 57	Kil. 44	Kil. 41	Kil. 39	Kil. 55	Kil. 24	Kil. 32	Kil. 56	Kil. 58	Kil. 46	Kil. 50
Circumference -	Mil. 520	Mil. 510	Mil. 540	Mil. 510	Mil. 530	Mil. 530	Mil. 550	Mil. 540	Mil. 510	Mil. 480	Mil. 550	Mil. 530	Mil. 560	Mil. 530
Antero-posterior curve	320	540	..	360	380	320	320	300	315	330	340	330	340	336
Biauricular curve -	300	300	290	320	310	310	320	310	300	260	300	280	300	275
Breadth of forehead -	130	140	140	170	170	90	160	160	80	50	140	120	120	160
Height of forehead -	40	45	40	41	70	50	40	40	25	30	40	50	30	50
Longitudinal diameter	190	200	200	200	175	181	188	181	177	174	190	190	195	180
Transverse - - -	154	155	170	165	150	154	162	154	142	155	165	152	160	148
Bimastoid - - -	..	145	..	165	160	160	146	150	140	136	..	142	137	137
Bizygomatic - - -	126	130	..	140	142	135	130	140	127	129	136	137	132	130
Fronto-mental - -	134	170	200	200	175	150	175	200	165	200	185	182	185	221
Occipito-mental -	223	210	224	240	225	216	225	..	211	..	226	217	224	216
Length of ear - -	55	35	63	59	..	65	71	85	..	..	65	65	61	80
Breadth of ear - -	25	36	23	42	..	30	42	36	..	..	27	46	35	40
Length of arm - -	230	260	300	335	128	300	295	290	195	235	380	330	300	280
" forearm - - -	180	..	240	250	220	250	240	250	281	160	230	240	210	240
" hand - - - -	144	140	160	190	160	..	168	160	140	130	180	170	150	170
" thumb - - -	50	42	70	70	..	60	50	..	54	50	57	57	45	60
" index - - - -	62	50	81	87	..	90	110	..	105	..	71	105	70	80
" middle finger	60	78	..	96	..	95	..	..	92	..	73	70	78	85
" ring finger -	70	71	..	94	..	90	..	..	86	..	..	82	82	76
" little finger -	50	50	..	60	..	70	..	..	68	..	72	60	57	70
" thigh - - - -	395	360	..	380	..	..	..	..	..	..	390	..	350	330
" leg below	..	..	..	..	..	..	..	..	..	..	..	..	..	..
" knee - - - -	340	270	..	400	..	..	..	..	..	..	390	320	330	330
" foot - - - -	130	120	..	235	..	..	..	..	..	..	230	230	220	215
Distance of auditory	..	..	..	..	..	..	..	..	..	..	..	..	..	..
meatus to chin -	130	126	102	150	100	140	150	160	130	..	..	160	160	150
Distance to bregma -	130	120	..	160	190	190	180	180	144	..	..	161	150	160
Distance to root of nose	128	110	116	130	130	130	120	140	121	..	115	128	132	130
Distance from nasal	..	..	..	..	..	..	..	..	..	..	..	..	..	..
septum to alveolar	..	..	..	..	..	..	..	..	..	..	..	..	..	..
margin - - - -	12	15	..	14	15	21	22	..	65	..	..	10	22	20
Force with fist - -	25	40	..	80	60	40	65	..	28	..	60	60	..	..
Traction force - -	38	10	..	..	16	20	10	..	8	..	50	12	..	..

TABLE II.—CRANIAL MEASUREMENTS.

	Negro, 18 years old.	White Man, 3 years.	(Gazanga, Male Cretin of 48.	Hydrocephalic Female Cretin of 48.	Cretin Female of 12.	Male Cretin.	Male Cretin of 60.	Cretin (Ibidious) of 28.)	Male Cretin of 88.	Male Cretin (Leva) of 88.	Cretinous Woman of 28.
	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.	Mil.
Circumference of the head	490	525	520	490	440	510	480	510	520	530	495
Longitudinal curve	340	370	350	340	320	300	320	350	355	365	344
Biauricular curve	310	324	320	360	290	320	310	350	325	320	290
Greatest breadth of forehead	150	164	150	145	120	103	120	140	160	160	110
Least	120	120	100	95	90	60	100	115	105	120	106
Length of the frontal bone	100	125	120	90	100	120	110	90	110	120	120
" " parietal	110	144	110	100	106	133	100	105	120	140	105
" " occipital	100	120	120	150	95	177	105	125	120	110	110
External longitudinal diameter	170	186	174	150	150	176	160	164	180	188	161
" transverse	138	147	151	155	124	142	140	155	155	142	147
" biparietal	138	140	150	142	124	142	140	156	150	142	142
" bimastoid	127	121	150	110	91	120	100	112	130	120	105
" frontal	105	102	100	150	82	..	102	105	103	104	102
" bizygomatic	125	121	134	130	102	105	130	140	140	137	123
" occipito-mental	201	191	223	200	170	215	200	212	210	220	200
Distance from the root of the nose to the chin	111	115	85	90	86	87	95	96	107	130	98
" from occipital foramen (posterior margin) to chin	140	120	131	131	98	157	130	135	130	141	112
" from anterior margin of foramen to chin	114	65	105	104	16	126	106	125	106	118	117
" from anterior margin of foramen to exterior occipital	40	53	31	46	45	49	50	..	52	38	..
" from auditory meatus to root of nose	107	98	108	90	115	101	98	105	105	102	108
" from nasal septum to alveolar margin	12	20	17	20	..	10	30	15	21	19	6
" from the root of the nose to alveolar margin	63	71	..	51	44	50	61	60	67	60	60
" from occipital foramen (posterior margin) to lambdoid suture	100	98	111	115	60	98	85	105	198	110	110
" from occipital foramen to root of nose	133	135	102	..	92	..	98	102	100	104	..
Length of palate	54	49	51	40	38	56	43	60	54	63	50
Breadth of	44	35	50	31	30	37	36	51	54	50	50
Vertical height of cranium	124	134	120	128	110	121	107	100	120	100	101
Distance between the two nasal processes, or superior nasal diameter	32	26	29	30	28	30	29	15	31	27	30
Circumference of the occipital foramen	95	107	92	80	90	124	100	95	110	111	..
Longitudinal diameter	38	33	32	33	30	40	34	35	41	35	21
Transverse diameter	30	32	30	30	25	34	26	26	30	32	32
Circumference of the orbit	120	107	110	110	100	115	120	12	10	102	111
Depth of the orbit	56	48	..	31	39	54	46	45	52	55	54
Longitudinal diameter of the orbit	33	39	31	35	29	34	32	35	35	35	30
Transverse	37	36	34	35	31	38	36	40	35	40	36
Cranial capacity	1130	1420	1215	1310	..	1355	1087	1160	1383	1440	1402
Orbital capacity	45	..	..	..	..	..	44	46	..	..	..
Facial angle	64°	72°	63°	..	..	70°	..	59°	..	53°	66°
Frontal angle	..	..	59°	..	..	75°	..	..	..	70°	..
Fronto-orbital angle	135°	140°	121°	..	..	..	119°	126°	..	..	..
Occipito-basilar angle	126°	131°	..	..	130°	..	..	135°	132°	..	..
Cephalic index	81	79	86	91	96	80	87	94	86	79	90
Cephalo-spinal index	20,80	22,40	15,70	..	..	16,90	..	..	13,20	12,30	..

Several notes are appended to these two tables. Amongst other particulars, it is recorded in the first table that cases 2, 3, and 10 had goitre, and 1, 3, 8, and 13 had some deficiencies in the organs of generation. The notes to second table refer for the most part to irregularities of the teeth, and minute peculiarities in the skulls. Gazzaniga had the basilar apophysis completely horizontal, with traces of the spheno-basilar suture still remaining. The palate bones were very flat.

The female cretin of 12 years had the spheno-basilar cartilage still unossified. The basilar process was vertical, and the superior canines were still in the alveolus.

The libidinous cretin of 25 had a very prognathous face, of which the outline is given.

The cretin of 36 (Leva) had a goitre ; generative organs deficient.

The vital functions of cretins are very languid. Dr. Savoyen has observed that the pulse is sometimes slower by four or five beats in the minute, and the bodily temperature less by two or three degrees C. There is very little variation in the cretin's appearance from childhood to puberty, or from puberty to old age. They are generally short-lived. I saw a cretin begging in the streets of Grenoble who had the appearance of being very old. He had gray hair, stooped very much, and wanted all his teeth. He had a goitre of considerable size. A sou thrown on the pavement for him caused him to look round, but he failed to notice it, though it was lying before him. He did not answer me when I spoke to him, and allowed himself to be examined without remonstrance as without interest. Nièpce has analysed the blood taken from eight cretins (only one of whom was in good health) and found that the fibrin and albumen were both less than in healthy blood.

Dr. Erlenmeyer¹ who made a careful analysis of the blood

¹ *Mikroskopisch-Chemische Untersuchungen des Bluts, Stuhls, und Harns*

in thirteen imbeciles, principally cretins, states that the fibrin is the only component of the blood which occurs in pretty normal proportion, and does not vary notably in quantity from age, sex, or the time of taking food or fasting. Dr. Erlenmeyer also found that much undigested and unabsorbed food appeared in the stools. The phosphatic materials of the food and the muscular fibres were not well absorbed; the starch did not duly pass into sugar; and neither it nor the fatty substances ingested seemed to be taken up in any normal proportion. He concluded that there was some deficiency in the pancreatic juice. By increasing the milk diet he found an improvement in the composition of the fecal excreta.

Dr. Erlenmeyer also found that the urine of imbecile children is poor in solid ingredients, both organic and mineral, owing, as he believes, to their limited assimilative powers and the incomplete metamorphosis of the tissues. The nitrogenous constituents of the urine rapidly decompose into ammoniacal compounds. The urine has a bad smell, and frequently deposits sediments. With cretins as with other idiots, puberty¹ is late, or does not appear at all.

Schwachsinniger Kinder, von Dr. Erlenmeyer, &c., Beobachtungen über den Cretinismus, Zweites Heft.

¹ The remarks of Niépce on this subject are worth repeating: "Mes observations m'ont appris que les fonctions de la génération sont nulles chez les crétins dont la maladie est très prononcée; que ce sentiment de la production ne se réveille qu'à mesure que le crétinisme diminue, qu'il est moins fort. Chez les cretins fortement affectés, les organes génitaux sont peu développés et la verge, souvent à l'état rudimentaire, ne peut entrer en erection. A mesure que le crétinisme est moins prononcé, les parties génitales deviennent de plus en plus complètes, et l'on voit alors quelques-uns de ces malheureux posséder une véritable faculté reproductrice. La masturbation est assez rare, et si quelques exceptions ont été prises par certains observateurs pour l'habitude, c'est qu'ils ont vu quelques crétineux surexcités par une espèce de frénésie érotique, sans être retenus ni par la raison ni par la moralité, si livrer à la masturbation en présence de leur famille ou des étrangers. Toutefois, ces exemples sont fort rares, ainsi que j'ai pu m'en assurer par de nombreux renseignements. Les femmes crétines sont plus lascives; chez elles, les désirs vénériens se font plus souvent

Sensory Deficiencies of Cretins.

Authors like Nièpce have represented the senses of cretins to be more deficient than they probably are in reality. It is safer to trust to the observations of Guggenbühl, who, at the Abendberg, had better opportunities of closely studying the extent of their faculties. All agree that the sense of sight is generally good. Guggenbühl says that deafness is rare with young cretins, but that dulness of hearing is not uncommon (*Schwerhörigkeit nicht selten*). Nièpce says that scarcely a third of these unfortunates enjoy perfect hearing. The external ear is ill formed, and the auditory foramen is often very large and full of thickened wax. In some cases it was completely obliterated. He dissected the internal ear of a cretin, and found the internal auditory foramen much contracted, the ossicles large and of a spongy composition, and the substance of the auditory nerve denser than usual. The taste and smell of cretins, like those of other idiots, seem in many cases deficient, especially the taste; and feeling, if not dull, is connected with many illusions, and requires special education. This is likely owing to the extreme mental stupidity, which is the saddest of all the deficiencies of these unfortunate creatures.

Mental Deficiency of Cretins.

There is every degree of obtuseness, from mere stolidity to complete fatuity. The Sardinian Commission has divided cretins into three classes, according to the measure of their mental powers.

In the first class the subjects have only vegetative faculties,

sentir ; elles sont réglées très tard, et cela seulement vers la dix-huitième ou vingtième année. Leurs règles reviennent à des époques d'autant plus fixes et régulières, que le crétinisme est plus faible.

"Lorsqu' une crétine est affectée à un haut degré, elle n' éprouve aucun désir vénérien."—Nièpce, op. cit., p. 85.

are entirely destitute of reproductive and intellectual powers, and cannot speak. These are styled simply cretins.

In the second class they have vegetative and reproductive faculties and some rudiments of language. Their intellectual efforts go no further than their bodily wants, corresponding only to the impressions of the senses. These are called semi-cretins.

The third class adds to the faculty of the preceding one a greater amount of intellectual power, without reaching the normal human capacity. They have some aptitude at learning a trade or doing different kinds of work. They are called *cretineux*, or cretinous.

I know of nothing in the intellectual state of cretins distinguishing them from other idiots, save perhaps the following, translated from the Sardinian Report.

"We may here recall a peculiarity especially pointed out by Maffei, and common to almost all those unfortunates—the total suspension of almost every mental act during several hours, and that periodically several times in the day. During these attacks the cretins remain with their eyes open and fixed upon the sky or some object, without moving the eyelids; the mouth open, almost without breathing, and without giving any sign of life. To see this immobility, this passivity of physiognomy, one would say that the soul had entirely left the body—in fact, a similar absence of all emotion in the countenance gives room to think that there is neither consciousness nor life within them."

This singular condition cannot be very frequent in cretinism, for it is rarely described by writers on the subject. I do not remember of anything of the same kind being noticed in the other forms of idiocy.

Complications of Cretinism.

Cretins in general escape the ordinary diseases of childhood ; but they are very liable to suffer from severe eclamptic fits, hydrocephalus, apoplexy, and other diseases of the nervous system, which complicate their disease and increase the mental obtuseness. Rickets is a common complication, generally appearing about the first dentition, and often ending in lameness and aggravation of the mental fatuity. Cretinism and albinism occasionally go together. Cretinism is sometimes found to co-exist with pellagra in the valley of the Po ; and sometimes it blends its miasma with that of intermittent fever. Hernia is common with cretins. They are liable to be troubled by asthma ; but phthisis is rare, though very often met with in genetous idiocy.

Diagnosis.

The diagnosis between these two forms must sometimes be difficult ; and no doubt idiots of other classes appearing in the endemic haunts of cretinism are often put down as cretins ; but we have no proof that the cretino-genetic miasma acts so as to exclude other causes which produce idiocy in countries where cretinism is unknown. As already noticed, genetous idiots have sometimes a cretinoid appearance ; and the assertion of some French writers that the abnormalities in congenital idiocy are generally confined to the head is fallacious. The palate of the cretin is generally flat, and the presence of a goitre would probably decide the class in an endemic district.

Prognosis.

One would think that the prognosis of cretinism was much better than that of other forms of idiocy, at least in

early childhood, if the child could be withdrawn from the external cretinising influences and carried away to a healthy situation beyond the reach of the endemic cause. Guggenbühl, who established his institution on an elevated site on the Abendberg, claimed to have made a number of total cures, and the improvement of his cases was attested by many competent authorities, some of which are cited in his work. I have, however, been assured by the teachers of several training schools visited by me in Switzerland, that cretins do not seem to improve under training any faster than idiots of other classes.

One very cheering fact is beyond dispute : both in France, Switzerland, and Germany a steady diminution in the prevalence of goitre and cretinism has been ascertained. This is most probably owing to the increase in the well-being and comfort of the people who live in the endemic districts ; for though easy circumstances and great attention to cleanliness and hygiene are not enough to save families from this dreadful visitation, they at least diminish the number of its victims. The cretino-genetic malaria, like that of paludal fever, visits with greater frequency those who live in wretched and unhealthy abodes, and through poverty, toil, or dissipation, have constitutions ready to yield to the inroads of disease.

Pathological Anatomy.

It might be supposed that, though we are unable to bring the divers forms of cretins to one inclusive description, we might at least detect some lesion after death which was common to them all ; but the mere reading of a description of the abnormalities found in different dissections, such as that contained in the Sardinian Report, will disabuse any one of such hopes.

The morbid appearances are not only various, but they

are often contradictory. The skull is generally about the average capacity, and smoothly rounded ; as Malacarne observed it is less arched on the summit and less plain on the sides than is usual. Sometimes it is small, and sometimes abnormally large. Frequently the bones of the cranium are thick and solid ; but they have been observed to be very thin, or thick at one place and thin at another. The size of the orbits is occasionally unequal. The upper sutures are generally open, but sometimes closed ; often there are Wormian bones between the sutures. As in genetous idiocy, the irregularities are greater at the base of the skull. There is often a want of symmetry between the right and left sides. The fossæ and sinuses are of different sizes, the processes run at different angles, or the foramina are of varying calibres. The foramen jugulare is in many cases broader on the right side ; in a few broader on the left.

Virchow believed that he had found the capital abnormality of the cretin in the premature ossification of the spheno-basilar bone. He has brought out his views in several articles in periodicals, and also in a separate book, which is by no means easy or amusing reading.¹ To understand fully the theory of the learned pathologist of Berlin, it is necessary to commence with a few details.

Sömmerring proposed to treat the sphenoid and basilar portions of the occipital as one bone, as it is seen to be in the adult, under the name of the basilar or the spheno-occipital bone, or, as Virchow calls it, os tribasilar, because it is composed of three bones which represent the bodies of the last three cranial vertebræ. These are the—

I. Os basilare posterius, or os basilare occipitale of Owen, the basilar process of the occipital bone.

II. Os basilare medium or os basis sphenoides of Owen, the posterior segment of the sphenoid bone. This includes

¹ *Untersuchungen über die Entwicklung des Schädels-Grundes, ut cit. supra.*

the upper part of the clivus, the sella turcica, the great wings, the pterygoid processes, and the base of the rostrum.

III. The os basillare anterius of Virchow, or os præ-sphenoides of Owen. This comprises the jugum sphenoidale, the sulcus opticus, the smaller wings, the anterior clinoid processes, the ethmoid spine, and the rostrum.

Ossification goes on from behind forwards, the posterior parts being ossified first. The ethmoid bone, which by most anatomists is not regarded as representing a vertebra, is not ossified, even at birth. The bodies of these bones grow long, as Virchow expresses it, from cartilage, and grow broad from periosteum. The two segments which compose the sphenoid commence to unite a little before birth. In the newly-born infant they generally appear united, because osseous union commences from above; but on making a vertical section of the bone, it is seen that the union has not gone far, the inter-vertebral cartilage being persistent for the greater part of the two segments of the bone. The disappearance of cartilaginous union goes on so slowly that traces of it may be found up to the thirteenth year.

The dorsum ephippii and posterior clinoid processes forming the upper part of the clivus are still at birth composed of hyaline cartilage. The ossification of the rostrum is also slow, some of the cartilage being still to be found from the fourth to the sixth year. The basilar bone grows most from the seventh to the fifteenth year. About the period of puberty it unites with the sphenoid bone, and then the elongation of the base of the skull from the sphenoid to the occipital foramen comes to a stop, for the condyloid pieces of the occipital bone unite with the basilar and posterior portion about the sixth year.

Virchow affirms that after the cartilages have disappeared, and the three bones have become ossified into one, no elongation of the base of the skull can take place save by the

dilatation of the cavity of the body of the sphenoid bone, which, however, appears to cause a certain amount of atrophy in the ethmoid bone ; but through the influence of disease or morbid development a too early synostosis of the bones of the base of the skull may take place, and hinder the growth of the base of the brain. Virchow holds that this synostosis of the spheno-basilar bone takes place very early in cretins, which prevents the elongation of the base of the skull, and consequently of the brain, from the foramen magnum to the crista galli.

In a new-born cretin which was carefully dissected by Virchow, the whole length of the base of the skull was found from fourteen to sixteen millimetres less than usual, and the angle between the posterior part of the sphenoid and basilar bone was from 42° to 46° more acute than normal. The synostosis of the sphenoid and basilar bone had already taken place. Many observers have noticed something abnormal about the basilar portion of the occipital bone. Ackermann¹ has described and figured in an engraving an unusual steepness of the basilar part of the clivus, which made it descend almost at a right angle to the sphenoid. Foderé² quotes the dissections of Malacarne to the same effect, and Drs. Eulenberg and Ferd. Marfels,³ who made a careful examination of the body of a cretin woman, confirmed the views of Virchow. Many other observers, however, have noticed that the basilar portion of the occipital bone is well-nigh horizontal, and the central furrow which receives the medulla oblongata wanting. Lombroso's measurements confirm the assertion of Virchow that the distance from the root of the nose to the occipital foramen

¹ See Ackermann *Über die Kretinen eine besondere Menschenabart in den Alpen*. Gotha, 1790, s. 33, 34.

² Foderé, *Traité du Gâté et du Cretinisme*. Paris, An. VIII., para. lxxxi., p. 145.

³ Doctors Eulenberg and Ferd. Marfels, in a little book, *Zur Pathologischen Anatomie des Cretinismus* ; Wetzlar, 1857.

is much shortened in cretins ; but he found that in many cases there was no early ossification of the spheno-basilar suture. Two examples were noted—one twelve years old, one forty-eight—where there were traces of the connecting cartilage. The most curious contradiction of the theory of Virchow was observed in the skull of a cretin woman of twenty-eight years old. She had been married and had borne children. The skull was asymmetrical in shape (right parietal plagiocephaly) ; the sutures were not closed. The palate bones were flat, and the canines protruding. The basilar process and the occipital condyles were wanting, and their place was supplied by two plates of bone like the inferior articular processes of the atlas, but narrower, as it were traces of an atlas which had amalgamated with the occipital bone. Thus, the first vertebra alone bounded the occipital foramen, which descended in a vertical direction. Only the upper part of the clivus remained, and it is clear there could be no ossification of the spheno-basilar bone when the basilar bone itself did not exist.

Virchow does not explain, on physiological grounds, why a diminished growth of the spheno-basilar bone should cause idiocy. The sutures on the upper part of the skull generally remain open in cretins, allowing the hemispheres to increase to a normal size, and even on the floor of the cranium there are other sutures which remain open, and allow room for the growth of the base of the brain, both laterally and longitudinally.¹ Even admitting the abnormal shortness of this

¹ Dr. Lucaë, in his *Architectur des Menschen Schädels*, Frankfurt am Main, 1857, p. 6, in opposition to the assertions of Virchow, points out that, independently of the spheno-basilar suture, the base of the skull can increase in length at the following edges : through the suture, between the frontal bones and the small wings of the sphenoid and the crista galli ; through the points of meeting between the greater wings of the sphenoid and the temporal bones at their inner and outer ends ; through the points of contact of the body of the sphenoid with the occipital bone ; and through the points of contact of the sphenoid with the ends of the petrous portion of the temporal. The base of the skull can likewise increase in breadth, through the suture connecting

region of the skull, and a check in the corresponding part of the brain, what we know of the functions of this tract does not warrant us in supposing that we have here an explanation of the fatuity of the cretin.

Dr. Meschede,¹ resting on the views of Griesinger, Guislain, and others, considers those parts behind the pituitary body, or the space between the corpora quadrigemina and the corpora olivaria, as the seat of muscular impulses—what he calls “spontaneität,” and what Longet calls “la volonté d’incitation.” A want of development of these parts might explain the physical indolence, but it could not explain the mental hebetude of the cretin, which ought to be due to some lesions in the hemispheres of the brain. The descriptions of the state of the brain are also often conflicting. Sometimes the brain is symmetrical; more seldom the reverse. The convolutions are frequently noticed to be simple, and sometimes to be flatter than usual. Niépce observes that there is often abundance of serous fluid in the ventricles and under the arachnoid. The sensorium is bathed in a fluid which increases the obtuseness of the faculties, and augments in quantity, till it infiltrates all the nervous substance, causing softening of the tissues. The presence of serous fluid is almost constant where the goitre is large and compresses the veins of the neck. Sometimes the sinuses are

the orbital part of the frontal with the ethmoid bone; through the middle points of contact of the great wing of the sphenoid with the temporal bones; through the sutures between the body of the sphenoid and the summit of the petrous portion of the temporal bone.

¹ *Zur Pathologie und Pathologischen Anatomie der Pyromanie von Dr. Fr. Meschede, Zeitschrift für Psychiatrie*, 29 Band, 1 Heft; Berlin, 1872. A rapid slope or other alteration in the clivus is common with genitous idiots. I hardly think it common with lunatics; in about fifty dissections of lunatics made with Dr. F. Skae at the Stirling District Asylum, in only three cases was there any abnormality about the spheno-basilar bone. Dr. F. K. Stahl, in his *Clivus Studien*, produces three or four cases out of 104 dissections where there were morbid changes about the clivus; but one of these was in an imbecile woman. See *Zeitschrift für Psychiatrie*, 29 Band, 4 Heft; Berlin, 1872.

gorged with blood, and the membranes injected or adherent, or the cerebral substance hyperæmic; at other times the brain is anæmic. Sometimes the brain matter is hard in consistence; more rarely it is soft. In one case the gray matter is noted as abundant, in another as deficient in quantity.

The fissure of Sylvius has several times been noticed to be shallow and ill-defined. The corpus callosum has been found deficient in size, and in one instance to be larger than usual. The corpora quadrigemina, the corpora mammillaria, and other ganglia at the base of the brain, are found smaller or larger than usual, and of irregular shape. In a good many instances the cerebellum has been found small, asymmetrical, or irregular in form. Malacarne counted the lamellæ of the cerebellum, and found only 300 instead of 600; and this observation has been confirmed by subsequent anatomists. The medulla oblongata has been sometimes observed to be small; and Niépce has described a good many irregularities in the roots and origins of the cerebral spinal nerves. On two occasions, at least, the ganglia of the intra-costal nerves have been noticed to be larger than usual. Dr. Stahl gives the details of a careful chemical analysis of the brain of a cretin; but nothing abnormal was found.

It is much to be regretted that we have not got a series of good microscopical observations.

We thus see that the nervous centres of the cretin are in most cases diseased, and it is probably true that where the fatuity is deepest the alterations are greater; but we can point to no special lesion or series of morbid changes. To use the words of Lombroso, the abnormalities observed point to a foetal affection, which strikes one or other part of the embryo, now in this direction, and now in a contrary one.

Prophylaxis and Treatment.

In the reports issued by the authority of the Committee of Public Hygiene of France, already so often cited, there are valuable recommendations for the prophylaxis and treatment of goitre and cretinism.

In Dr. Baillarger's report the prophylaxis against the endemic diseases is reduced to the three following points :—

1. To combat the general causes of insalubrity, to improve the hygienic conditions, and increase the well-being of the population exposed.

2. To change the drinking water.

Dr. Baillarger, without asserting that drinking water is the only vehicle of the toxic agent, thinks that the diseases can be caused by drinking from certain fountains, and that benefit has been already derived from changing the water.

3. To institute everywhere a gratuitous course of treatment, which ought to commence with the appearance of goitre and cretinism.

Goitre being, as it were, the germ of the disease, ought to be treated at once. This would constitute a sort of individual prophylaxis, and might turn out a preventive in the families where goitre and cretinism are hereditary.

Experience on a great scale, in France, Switzerland, and the Indian Terai, has shown that goitre may in most cases be successfully treated with small doses of iodine and iodide of potassium, with the external application of iodine and of biniodide of mercury. Parchappe and Baillarger recommend the use of minute doses of ioduretted salts, taken with the food, as a preventive. Boussingault observed that in the Andes the inhabitants of the valleys of the Guaca and Antigoia are exempt from goitre, though it is common all around, and that this exemption has been found associated with the use of salt containing a certain quantity of iodine. This salt is ex-

ported to other valleys to prevent or combat the endemic. The use of iodine, even in very small doses, would require to be carefully watched, from the tendency of this substance to cause absorption of the glandular organs. As preventive and curative measures against cretinism, Baillarger recommends—

1. To withdraw the mothers, who have previously had one or several cretin children, from the action of the endemic causes during the time of pregnancy, by taking them to healthy places.

2. To send out to nurse on the mountains the children predisposed to cretinism, or who have shown the first symptoms of its appearance.

3. To erect in high and healthy situations especial establishments to receive the very young children, where they may be nursed and tended.

The Commission recommended the establishment of an institution for the treatment and education of young cretins, like that of the Mariaberg in Wurtemberg, which has been the subject of a very favourable report made to the Consultative Committee on Hygiene by M. Beaudé.

The calamities of foreign war and political turmoil, which delayed the publication of these valuable reports, have also put off the foundation of such an establishment ; but it is to be hoped that the Republic, now victorious over Ultramontane intrigues and Bonapartist corruption, will carry out the recommendations of the Commission.

The treatment which Dr. Guggenbühl found to be most useful at the Abendberg consisted of, in the first place, the vivifying effects of the free mountain air, on which he laid great stress. I have however been told by one of his assistants that the feeble children suffered much from cold in the winter at his elevated establishment. Milk, especially with the younger patients, was a prominent article in the dietary.

He used cold and shower baths, with frictions of the skin with dry flannels, as well as with spirituous and aromatic fluids, to act upon the cold, flabby, and wrinkled skin of the cretin. For internal administration, Guggenbühl found the preparations of iodine, theoretically so promising, not to do any good. They increased the weakness, and might, he thought, be dangerous by causing atrophy; but the combination of iodine and iron in the form of the syrup he found to be of value. Where anæmia was a prominent symptom, he used carbonate of iron. Cod-liver oil was indicated where there was much muscular weakness, and proved useful to raise the tone of nutrition and physical strength. He found benefit from the salts of copper, as well as from the oxide of zinc and valerianate of zinc, when there was spasmodic complication. Where there was a wasting of the limbs from rickets he used magneto-electric currents, either by applying the electrodes directly to the parts or by passing the current through tepid water in which the patient was immersed. Dr. Elliotson, who came to visit him, tried mesmerism, but did not succeed with any of his manipulations in sending a single cretin to sleep.

Much the same treatment is now employed in the hospital of the town of Aosta. It consists in the use of cod-liver oil, syrup of the iodide of iron, sulphurous and iodised baths, frictions with flannel dipped in aromatic wine, principally upon the spinal column, and sometimes in the employment of electricity. The children are kept as much as possible in the open air. Great attention is paid to cleanliness, and proper gymnastic exercises are used to increase their strength.

CHAPTER XII.

TRAUMATIC IDIOCY.

Nature and Symptoms.

TRAUMATIC idiocy ought to be distinguished from inflammatory idiocy, for although inflammation is likely to follow a blow on the head, it may be small in comparison to the damage done by the direct injury which the brain experiences from contusion, incision, division of the nervous tissue, or depression of the skull.

At the same time a small injury might be followed by extensive inflammation, and traumatic idiocy will always be difficult to separate from inflammatory idiocy, but we may in general expect the inflammation to be less diffused and situated around the local lesion. At any rate, if we are to make progress in the study of idiocy, we must separate the one class of cases from the other, and study them apart.

Of course the degree and nature of idiocy arising from wounds in the head must vary with the amount of destruction of the nervous tissue. In military surgery the prognosis of wounds of the same part would naturally vary with the nature of the instrument which caused them ; for example, the arm being carried away by a round shot would be a much graver injury than if it were cut off by a sabre ; but injuries to the head causing idiocy happen in so great a variety of ways, and by so great a variety of instruments, that they are not even susceptible of this rude species of generalisation. We have to do with injuries to the unborn child by attempts

to procure abortion,¹ as well as injuries during labour by abnormal narrowness of the pelvis and the use of forceps; we have to deal with concussion as well as compression, hæmorrhages from the meninges as well as destruction to the gray or the white matter of the brain. Sometimes the injury to the mental power is permanent, sometimes it disappears more or less slowly; in some cases a trifling injury causes grave disorder, in others what appears to be a great injury leaves no visible effects behind. Hereditary predisposition has, no doubt, much to do with this.

The practice of flattening the head in infancy, though a very absurd custom, is an instructive experiment. These artificial deformations, mentioned by Hippocrates, have been found in ancient tombs in the Crimea and the Caucasus, and even in western Europe. They have been practised by a great number of tribes in America, and by some in New Caledonia, by applying gradual pressure upon different parts of the head. Deformities of a monstrous character have often been thus produced, and it has been confidently stated² that the survivors who have been subjected to this prolonged process of deformation are not inferior in intelligence to neighbouring tribes, who leave the heads of their children to grow in the natural way.

M. Broca has pointed out that artificial deformations are even practised in some parts of France, especially in the neighbourhood of Toulouse, by bands tightly tied round the head; the shape of the skull is altered, and sometimes a furrow is noticed in the circumference of the head, corresponding to the site of compression. According to Dr. Delaye,³ the

¹ Dr. Howe traced idiocy to this cause in at least seven cases out of four hundred (*Causes of Idiocy*, p. 35). Such attempts are not so common in this country as in the United States.

² *The West Riding Lunatic Asylum Reports*. Edited by J. Crichton Browne, M.D., F.R.S.E.; London, 1871, p. 3.

³ See *Bulletins de la Société de Paris*, tome sixième, année 1871; Paris, 1872, pp. 127, 128.

deformity is well marked in several idiots and imbeciles in the asylum of Toulouse, of which he has the charge. It is clear, however, that this unhappy result is not remarkably frequent, or else the practice would have been long ago discontinued with so acute and civilised a people as the French. It is said to be by no means rare at Toulouse, though not so common as formerly. M. Broca¹ doubts the assertion of those travellers who say that the deformations of the heads of the American Indians have no effect upon their intelligence. He adds, if the information collected by M. Gosse is exact, the savages themselves have recognised that the artificial deformations have some influence upon the intelligence, and that the flattening of the front of the skull develops the courage, or rather the brutality, of warriors; and that the compression of the back of the head, on the contrary, develops prudence. Perhaps the caution of M. Broca is commendable, though it may be doubted whether he has a right to call courage "brutality." In any case it is difficult to see how compressions of the posterior region of the head can render the subject of this treatment more prudent in after-life. This reminds one of the theories of Mr. Easy in Captain Marryatt's novel. It would appear that compression gradually applied to the head, at least in savage races, can much alter its shape and compass without producing any very noticeable effects upon their intelligence.

The case of the old Peruvians, already referred to, is noteworthy. Not only is the capacity of the crania small, but most of them are artificially deformed. Out of 730 skulls in the Peabody museum at Hartford, Dr. Wyman selected 11 as apparently the only ones unaffected by any artificial compression or distortion. They were quite symmetrical, but all

¹ *Bulletins*, etc., p. 123. See also *Instructions Craniologiques et Craniométriques de la Société d'Anthropologie de Paris*, par Paul Broca; Paris, 1875, p. 152.

of small capacity, so that it seems the small space left for the brain is not the result of the artificial deformity.

Most physiologists, if asked what would be the civilisation or intellectual progress of a nation whose heads were smaller than its neighbours', and who practised artificial deformation of the head in infancy, would say that their progress would be small, and their intellectual powers of the very lowest caste. That the reverse was the case is a proof of the extreme difficulty and complexity of the inquiry. In our study of the physiology of the brain, the desire to formulate our knowledge is continually checked by exceptions which occasionally seem to stand in the way even of the vaguest generalisations. It is likely enough that idiocy was not uncommon amongst the Peruvians ; but the character of their civilisation was probably not favourable to their being brought up. In like manner, the savage tribes who still deform the heads of their children would in all probability never take the trouble to bring up an infant whom this rough process of compression had rendered idiotic. We hear very little of idiocy amongst the nations of antiquity, for ancient legislators considered it a meritorious or at worst a venial act to expose them to death in infancy. If Lycurgus or Solon had been told of a people in Atlantis, where all the idiots were educated at the expense of the State, and where healthy mothers, in their keen desire to escape from the "dependent condition of womanhood," used the researches of science to destroy the fruit of the womb, they would have thought the one thing a useless piece of weakness, the other an unheard-of mixture of folly and depravity. The one custom is but a proof of a great sacredness attached to human life, and a charitable desire to lighten suffering ; the other is an outcome of socialistic speculations likely to be the destruction of the nation which suffers such doctrines to spread.

Injuries to the head at birth are often assigned as causes of idiocy ; yet the head of the child is not unfrequently subjected to severe compression or injury causing alteration of its shape, and this in the great majority of cases does not lead to such unfortunate results. Nevertheless, in a certain proportion of cases, probably under the influence of constitutional tendencies, such injuries become the proximate causes of idiocy.

It seems likely that the larger size of the head of the male infant, which renders it more liable to compression and injury at parturition, as shown by Sir James Simpson, is the cause of the higher mortality of male children during the first year of life, and especially of their greater liability to diseases of the brain.

"According to Prof. Faye," says Darwin in his *Descent of Man*,¹ "for every 100 still-born females we have in several counties from 134·6 to 144·9 still-born males. Moreover, during the first four or five years of life more male children die than females ; for example, during the first year 126 boys die for every 100 girls—a proportion which in France is still more unfavourable."

"Diseases of the nervous system," observes Dr. Farre in the Registrar-General's Second Annual Report, "are 23 per cent more fatal to males than females, the chief difference arising from the diseases which affect children." "At almost every stage of life," says Dr. Stark, the Superintendent of the Statistical Department for Scotland, "the males in Scotland have a greater liability to death, and a higher death-rate than females. The fact, however, of this peculiarity being most strongly developed at that infantile period of life when the dress, food, and general treatment of both sexes are alike, seems to prove that the higher male death-rate is an impressed natural peculiarity due to sex alone."²

¹ Vol. i. p. 302.

² *Tenth Annual Report of Births, etc., in Scotland, 1867*, p. xxviii., quoted by Darwin.

Idiocy and deafness, both of them hereditary deficiencies, and both the result of diseases of the nervous system, are certainly commoner with males than with females. "It is a fact," writes Mr. David Buxton,¹ Principal of Liverpool Deaf and Dumb School, "that the majority of children who enter our institutions, having lost their hearing from disease, are males."

"Of 2962 instances," says Mr. Wilde,² "of uncomplicated congenital mutism, 2512 cases were cases of single mutes in each family, the sexes being in the proportion of 100 males to 73 females, and of these by far the greater proportion were first children."

In these cases it is easier to understand how the injury to the head of the child, which is generally the most severe during the first labour, should be the cause of idiocy than the cause of uncomplicated deafness. "It is remarkable," says the same writer, "that while the male sex largely predominated in all other instances, the sexes of mutes were equal in 84 instances in which the eighth child was born deaf and dumb."

M. Tripier³ states that only one-fifth of deaf mutes are so from birth, and that four-fifths become so after the age of two or three years.

Of 2000 children who came under Dr. Langdon Down's observation during a space of above eighteen years, 24 per cent were first-born children. He attributes the preponderance of first-born children to the more exalted emotional life of the mother, and to the greater resistance of the maternal passages and consequent pressure upon the head of the child,

¹ See his *Inquiry into the Causes of Deaf-Dumbness*, originally published in the *Liverpool Medico-Chirurgical Journal*, January 1859.

² See the interesting Appendix upon Deaf-Dumbness in *Practical Observations in Aural Surgery and the Nature and Treatment of Diseases of the Ear*, by William R. Wilde, F.R.C.S.I.; etc., London, 1853, pp. 470, 471.

³ See *Bulletin Général de Thérapeutique*, 1876, quoted in the *Chicago Journal of Nervous and Mental Diseases*, April 1876, p. 349.

and the retarded labour. No fewer than 20 per cent of all the idiots which came under his observation were born with well-marked symptoms of suspended animation; but out of the 24 per cent of the primiparæ, 40 per cent were born with suspended animation.¹

In only three per cent were the forceps employed. In every one of these cases the use of the instrument was believed by the parents to be the cause of the idiocy; but Dr. Down found that in nearly all of them there was a neurotic history in the progenitors. Dr. Down's statistics are in harmony with Dr. Ramsbotham's experience that the use of the forceps is not an important factor in the production of brain disease. He considers that the mental integrity of the child is more likely to be compromised by a prolonged pressure in the maternal passages than by the skilled employment of artificial assistance. My own observations hardly bear out the commonness of suspended animation in idiot children, but Dr. Down's experience is larger and, possibly his means of getting correct information are greater. "While the ratio of sex among idiot primiparæ was 3 males to 1 female, the ratio of those born with suspended animation was 5 males to 1 female, indicating the influence of the increased size of the male cranium over that of the female."²

In a previous article I observed that while not disposed to disagree with this conclusion of Dr. Langdon Down, I could not see how he strengthened his case by finding out that 24 per cent of idiots were first-born children, as 24 per cent of all children in England must be first-born children, and first-born idiots scarcely bore their due proportion to the healthy children of the country, for the average number of children to a marriage in England is 3·9; and we ought to remember that first-

¹ Dr. Langdon Down has most kindly sent me the MS. of his paper on *The Obstetrical Aspects of Idiocy*, which is apparently passing through the press.

² See a report of Dr. Langdon Down's paper "On some of the Causes of Idiocy and Imbecility," in the *British Medical Journal*, 11th October 1872.

born are more numerous than other children, as sometimes there are no second-born ones. But Dr. Down now states that 6·91, or nearly 7, was the average number of living children born to the parents who have had an idiot child; and Dr. Grabham¹ states that he has found that the average number in families into which idiots have been born is greater than 4, though he does not give the number. It ought, however, to be kept in mind that if we say the average number of children in families is 4, this does not imply that 1 in every 4 only is a first-born child, for there are cases where there are no second-born ones. On the other hand, Dr. Grabham found that out of 1100 children the proportion of male first-borns was less than that of female ones—23 to 25.

The proportion of first-born children amongst idiots ought to be greater in England than in Scotland, because Scotch marriages are more productive (4·4 to 3·9); and the proportion will be higher still in France, where the average of children is still smaller than in England.

Though I am disposed to believe that the increased pressure to which the human head is exposed during labour is the cause of the preponderance of male over female idiots, there are cases which make me suspect a more occult influence. I know of instances where there were as many as three male idiots in a family, all the girls escaping. If there were a history of difficult labour or suspended animation, occurring with the male children and not with the female, the causation would of course be clear; but I have reasons for believing this cannot be made out.

It is worthy of notice that cretinism is more common with males than with females,² and there have been more micro-

¹ *Remarks on the Origin, Varieties, and Termination of Idiocy.* Earlswood, 1875.

² "Le crétinisme est plus fréquent chez les hommes que chez les femmes. Ce fait échappe à toute explication."—Saint-Lager, *Causes du Crétinisme et du Goitre*, p. 10.

cephales recorded of the male than of the female sex. It has been asserted that congenital malformations, leaving injuries to the head at birth out of view, are more common with male children than with females;¹ but the high authority of Rokitansky is opposed to this statement.²

In cases of deaf-dumbness supposed to be congenital, it sometimes happens that in one family the boys are affected, the girls entirely escaping.³ This not unfrequently happens with congenital idiots. Sometimes, though more rarely, all the male children escape, and several or all of the female children are born deaf. There is one instance recorded in our case-book where there were in a family three imbecile sisters out of six, and four brothers who were of sound mind, but their ages and order in the family are not given.

As elsewhere observed, the older a child gets the more liable are injuries to the brain to prove fatal; hence the number of cases where idiocy can be traced to falls or blows upon the head is not large. At the same time, parents are extremely ready to attribute the idiocy of their children to an accidental fall or blow. As such accidents, however, do not often occur till the child begins to walk, and as this is almost always late in the case of idiots, we have here a criterion which ought to be made use of. In any case of idiocy which is put down by the parents to a fall on the head, the medical practitioner ought to make careful inquiries as to the existence of hereditary neurosis, the occurrence of fits, or other diseases likely to be the cause of idiocy, as well as the nature, extent, and immediate consequences of the injury in question. No doubt there are instances of idiocy which must

¹ See the Papers of Dr. A. Duncan, *Edinburgh Medical and Surgical Journal*, 1805, vol. ii. pp. 43-132.

² *Weibliche Missbildungen sind häufiger als männliche. Lehrbuch der Pathologischen Anatomie*, von Carl Rokitansky. Wien, 1855. Erster Band, p. 21.

³ See *Edinburgh Medical and Surgical Journal*, 1811, vol. vii. p. 62; also Wilde and Saegert *ut cit.*

be put down to external violence to the head. Setting aside those occurring at birth, such cases generally belong to the higher grades of imbecility, and, as the reader may imagine, they are not easily classified.

Prognosis.

The amount of injury to the mental powers is variable, depending upon a number of circumstances it would be difficult and tedious to specify. In most of the examples which I have seen, the patient was simple-minded or imbecile, rather than belonging to the lower grades of idiocy.

It may be noticed that some writers have seriously advanced that a violent blow or concussion upon the head has occasionally effected a cure of idiocy, or gross obtuseness of intellect. This is naturally a very rare event, even in upper class schools; and the instances that are given of it do not appear to me to be always trustworthy. I have seen it, for example, asserted in several books written by physicians of reputation, that Father Mabillon was an idiot till the age of twenty-six, when he had the good luck to fracture his skull, was trepanned, and changed into a learned writer upon ecclesiastical history. This is not the only one of these medical anecdotes copied from one book into another, which cannot stand inquiry.

Illustrative Cases.

The following are examples of traumatic idiocy after the dangers attending birth had been passed:—N. X. was the son of healthy parents, in whose family no infirmity of mind had appeared. He began to walk and speak at the usual time, and was a thriving intelligent child. When four years old he got a fall from a pony, lighting upon the head. There was a depression stretching from the nasal eminence to the middle of the forehead, one and a half inch long, marking the

seat of injury. He grew up to be a strong young man, with a head of good size. He could read and write, and had some knowledge of arithmetic. He was fond of reading amusing books like the Arabian Nights. He was garrulous and frank in conversation, and not very easily managed. He was distinctly simple-minded, not having more intelligence than a child of eight years of age.

B. N., though late in walking and speaking, was not observed to be idiotic till after a fall on the crown of the head. A cart, which she was in, was upset, and she was found under, stunned. There is no record of idiocy or insanity in the family. She is well made, and comely in appearance. She is now eighteen years old. She reads easy books for her own amusement, has learned sewing and knitting, and can do household work.

The following case seems to be of traumatic origin :—
K. N., aged 13; head small, narrowing towards vertex.¹ He was the first child; mother sixteen years old at his birth. Born at full time, and delivered with forceps. The marks of forceps were still visible on right temple, where there was a spot destitute of hair. The infant could not suck for the first week. He had three fits a short time after birth, and a great many more when three months old. Has had no fits for three years. He began to walk at two years; can only speak a few words, but understands to a limited extent what is said to him; knows he can get something for money; use of hands deficient; good-natured; apparently healthy.

¹ MEASUREMENTS OF HEAD TAKEN IN INCHES.

Antero-posterior	10½ in. = 26½ c.
Circumference	18½ 47
Transverse	11 27½
	<hr/>
	107½
From tragus to middle of forehead . . .	4½ 11½
From tragus to middle of occipital tuberosity	4 10

The mother, a healthy-looking Irishwoman, had five other children, all delivered by the forceps. They are all healthy, and said to be of average intelligence.

In this case it would seem as if the injury at birth had been the cause of the fits and the obstruction to the nutrition of the brain, so that it remained larger than that of a child a year old.

D. B., a lively noticing boy of nine years of age, but distinctly imbecile, was born with a face presentation. There was a bulging of the upper part of the forehead, which was still very prominent. He began to walk at two years of age, and to speak at four. I have little doubt that the injury to the frontal lobes was the cause of the imbecility.

F. S. was the daughter of healthy parents with no hereditary disease in the family. When one month old she was being carried out for an airing by the nursery-maid. The girl was shot through the arm by a bullet fired at random by a boy from a neighbouring garden. A surgeon was called to attend the nursery-maid, and it was assumed that the child had escaped all injury. But a few days afterwards it was noticed that the child's head had been grazed by the bullet. Idiocy was not suspected till she was between two and three years of age. She grew up an idiotic mute of very feeble intelligence. A shallow depression may be felt along the middle of the occiput, such as might be made by the finger lightly pressed upon a piece of potter's clay. The head is of the usual size and not otherwise deformed. The teeth are much decayed. Assuming this accident to have been the cause of the idiocy, it does not appear that the shock or bruising of the brain was sufficient to account for the mental deficiency, and it is probable that the injury was followed by cerebritis. We might thus rather call this a case of inflammatory idiocy of traumatic origin ; but, as already said, it is difficult to make a fine distinction between the two classes.

CHAPTER XIII.

INFLAMMATORY IDIOCY.

Nature and Symptoms.

INFLAMMATIONS of the mucous membrane of the nose and ears sometimes occur after scarlet fever, measles, and typhus, and these are the most common causes of deafness which is not congenital. Sloughing of the internal ear sometimes extends through the petrous portion of the temporal bone, causing inflammation of the membranes, and even abscess of the brain itself. Such lesions are generally fatal, and I have met with few cases of idiocy which could be plainly traced to inflammation of the encephalon not caused by external injury. It is certainly not uncommon to hear parents assign the idiocy of their children to some fever in early childhood; but I should certainly reject statements of this kind in which there were marks of genitous idiocy, such as a vaulted palate or irregular and bad teeth. Nevertheless it is extremely difficult for me, who rarely see the commencement of a case, to prove that idiocy, after all, did not precede, instead of following, the fever. A physician in extensive practice in a large town has opportunities of studying the causation of idiocy from actual observation, which any one who has attended to the subject must know has a different value from the theories of parents.

In a Report of the Institution at the Hague for young idiots,¹ out of 84 boys and 56 girls, two boys and one girl are

¹ Vifde Verslag van het geneskundig Gesticht en de daaraan verbonden

said to have become idiotic from measles, one girl from typhus, and one from hooping-cough.

It would appear from the researches of Jastrowitz¹ and others that inflammation of the brain occasionally occurs before birth, and that this sometimes extends down the spinal cord. Such cases are at present not capable of detection until after death.

The cases of inflammatory idiocy which we have met with were of different grades of intelligence. It is likely that the inflammation would be superficial and implicate the membranes and gray matter. The amount of damage to the intellectual powers must be mainly dependent upon the intensity of the morbid process, which we have seldom a direct opportunity of measuring.

Illustrative Cases.

The following example of idiocy, translated from Dr. Spurzheim's work on Insanity, is analogous to the post-febrile insanity of Dr. Skae's classification. Mr. Haslam gives the history of a girl who up to the age of two and a half years was perfectly healthy, of a gay disposition, and of much promise. She was inoculated with small-pox, and during the illness which followed she had convulsions and was continually delirious. When she recovered from the small-pox she had become deranged. Before this she could speak many words, and used them to signify the proper things ; but after she had forgotten their meanings, and showed no disposition to learn words. She wished to have everything she saw, and cried and was distressed when she did not get what she wanted. Her appetite was voracious, and she ate everything which came in her way, fat or lean, raw or cooked. She amused herself with the fire, and although she often burned

Dagschool voor minderjarige Idioten de Sgravenhage over de Jaren 1864, 1865, en 1866 ; p. 72.

¹ *Op. cit. supra.*

her fingers, she would not cease touching it. Her habits became dirty. She had a liking for some people, and a dislike to others. She seemed to know the names of some things, such as cake, orange, dinner. At the end of three years her understanding had made no progress.

The next example is from our case-book. A girl of twelve had brain fever at the age of eight years, with sloughing of the internal ears, producing deafness. This was regarded by her family as the cause of idiocy. She, however, was always peculiar, and did not begin to walk till two and a half years old, though she began to speak at twelve months. Her father's brother had been imbecile.

I reprint the following case, as it came to a post-mortem examination :—F. Q. was a boy, admitted in September 1872. He was then thirteen years of age. He was the youngest of a family of thirteen. His father was forty-one and his mother forty-two when he was born. His birth took place after a very sudden labour ; but there was no proof that it was premature. He was supposed to have been idiotic from birth, and began to walk when three years old. He had a chronic cough, but was thought to be improving in strength for the last few years. In expression he was dull and inanimate, with an odd face and short squab figure. In height he was 3 feet 8 inches. His gait was clumsy and awkward. The constitution was evidently feeble. There was a bruit at the heart with the first sound heard at the base. The pulse was weak and the extremities habitually cold. The fingers were clubbed. The measurements of the head were as follows :—

1. From the glabella to the occipital protuberance .	26½ c.
2. Circumference	48
3. From tragus to tragus across vertex	32
	<hr/>
	106½

The palate was not vaulted. The ears were thin and membranous.

He seemed to possess all his senses, and often smelt his food before tasting it. He could speak a few words, but only when excited. He used a spoon, could grasp an object, and could tie knots and put in buttons. In character he was somewhat wild and obstinate. His mother said that at home he used to wander away for miles, and had always to be carried back when caught. After admission he was much confined to the sick-room from various ailments, so that little was done in the way of training. He learned to thread beads, selecting the proper numbers and colours, and also to knit a little. He had been getting cod-liver oil for several months, as he seemed to be of a tubercular constitution, but the existence of tubercle could not be proved during life. When taken ill he was believed to labour under bronchitis and emphysema, as evidenced by heat of surface, increased pulse, cough, expectoration (which he always swallowed), pain in the chest, and breathlessness, sonorous, cooing, and liquid râles, with clearness in percussion. At one spot on the lower side of left lung percussion was almost tympanitic. The heat of skin and increased pulse diminished ; but he still continued to be affected with cough, dyspnoea rising into paroxysms, want of appetite, and wasting. No rise of temperature at night was remarked. He died, after being confined to bed four weeks, apparently from asthenia. He had been in the Institution seven months. During the inflammatory stages of illness he used to make signs as if for a dog, and look for or at it. This was supposed to be a delusion.

The examination of the body was made two days after death. The bronchi were found to be congested. The lungs emphysematous and speckled through their whole extent, with tubercular spots about the size of grains of sago and rice. There were no cavities nor large masses of tubercle, and, from the presence of the emphysema everywhere, no dulness on percussion could be expected.

The bronchial glands were full of cheesy tubercular matter. The thymous gland was filled with a white, softened mass of tubercle. The valves of the aorta and pulmonary artery were deficient ; the membranes of the valves unusually thin, and the corpora Arantii wanting. In one of the aortic valves there was a slit in the membrane.

The mesenteric glands were tubercular. The spleen had a porphyritic appearance of purple and white from concretions of tubercular matter, about the size of barley-corns. The liver was reduced in size, with specks of tubercle thinly disseminated. Some specks were also noticed in left kidney.

HEAD.—The dura mater was strongly adherent at posterior part of hemispheres, above the occipital tuberosity.

There were about three ounces of fluid in the base of the brain.

The pia mater was adherent on both sides to the hemispheres over the region of vertex.

The encephalon weighed	36 $\frac{1}{2}$ oz.
The cerebrum	32 $\frac{1}{2}$
The cerebellum, pons, and medulla oblongata	4

The convolutions were broad and simple, but not shallow ; they were not symmetrical. The gray matter was as broad as usual. On the left side the radiating convolutions of the island of Reil were replaced by one simple convolution about a half-inch broad, running from centre to circumference. On the right side there were two convolutions.

The cleft of the fourth ventricle seemed unusually wide. This appeared to be owing to deficient size of the uvula and amygdalæ.

The weights of the following organs were noted :—Right lung, 23 oz. ; left lung, 22 $\frac{1}{2}$ oz. ; heart, 7 oz. ; liver, 2 lbs. ; thymus gland, 1 $\frac{1}{2}$ oz. ; right kidney, 2 $\frac{1}{4}$ oz. ; left kidney, 2 $\frac{1}{2}$ oz. ; spleen, 6 $\frac{1}{4}$ oz.

This boy seems to have had meningitis either before or immediately after birth, which probably injured the growth and nutrition of the brain. The mutism was, no doubt, owing to the mental fatuity and paucity of ideas.

The following case is worthy of record, as it gives the microscopical appearances found in the brain by so distinguished an observer as Dr. Auguste Voisin.¹ A girl who, it appears, had no hereditary predisposition to nervous affections, and whose intelligence had gone on increasing in a normal manner up to seven years of age, was seized with a very severe typhoid fever, accompanied by intense cerebral complications. From this time her intelligence was arrested in its development. She derived very little benefit from the education which was given her. Nevertheless she was married; but she was incapable of managing her house and of doing her domestic duties. In the course of time her imbecility became complicated with sensorial and intellectual delirium, and at the age of thirty years she was sent to the Salpêtrière, where she died through an accidental cause.

The head was badly formed, too narrow at the sides and too high at the crown; and in the centre of the forehead there was a rounded furrow, which inclined a little to the left. The cranial cavity was increased in size, both at the crown and the base of the skull. The sphenoid bone was hypertrophied, and the small wings were three times larger than usual. On examination with the microscope the osseous cells were found to be enlarged, and most of the Haversian canals contracted. On looking at sections of the gray matter of the frontal convolutions through the microscope, many of the vessels were found to be fatty; the nerve cells were much altered, presenting a pigmentary degeneration; there was atrophy of the protoplasm, disappearance of the secondary prolongations, and atrophy of the axis-cylinders.

¹ See *Annales Medico-Psychologiques*, tome troisième. Paris, 1875, p. 133.

Hypertrophic Idiocy.

I have some misgivings that the rare form of idiocy connected with hypertrophy of the brain should be in a class of its own. In the meantime I have put it under the head of Inflammatory Idiocy, where in any case it must form a distinct variety. Hypertrophy of the brain¹ is a rare affection. Many experienced physicians have never seen a case of it, and pathologists are by no means agreed as to its nature and causes. It implicates the hemispheres, and sometimes extends to the corpora striata and optic thalami, but rarely to the pons or cerebellum. In a recent work on the diseases of infancy, hypertrophy of the brain is treated as a congenital affection, often ending fatally, but compatible with life and normal intellectual development when not accompanied by sclerosis. MM. Espine and Picot hold that it is a general hypertrophy of all the tissues, and not one of the neuroglia alone, as Rokitansky and others advanced. It is certain that there may be great hypertrophy with increase of weight of the brain with normal intelligence. Sometimes, indeed, the intellect is said to be precocious. Idiocy does not follow save when the hypertrophy is accompanied with encephalitis, which generally appears in the first or second year. The sclerosis may be regarded as the result of the inflammation combined with pressure, and the abnormal ossification of the cranium when rickets are present. If this hardening extends to a great number of convolutions it produces atrophy of the corresponding hemisphere, and a descending fascicular sclerosis on the opposite side of the medulla. These lesions during life are attended with paralysis, with atrophy or contraction of the limbs of the opposite side, and with idiocy; but when the sclerosis in the convolutions is limited, it may be com-

¹ In treating of this rare disease I have closely followed the *Manuel Pratique des Maladies de l'Enfance*, par A. d'Espine et C. Picot. Paris, 1877.

patible with normal intellectual development. In fact, most cases of hypertrophy of the brain seem to die, a few recover, and fewer still take the *via media* of idiocy. I have seen one case, a boy eight years of age, at the Clapton Asylum, and am principally indebted to Dr. Fletcher Beach for an account of this form of idiocy.

Besides this boy, Dr. Beach had an imbecile affected with hypertrophy who died at the age of fifteen years. Both had fits, but in the latter case they occurred only at the last, and were probably due to meningitis.

The distinctive diagnosis between hydrocephalus and hypertrophy of the brain has been already given at page 151. It principally rests upon the observation that in hydrocephalus the increase is most prominent at the temples, and in hypertrophy it is most prominent above the superciliary ridges. In hydrocephalus the width between the eyes is increased. In Dr. Beach's second case the prominences above the superciliary ridges were well marked. The brain was very heavy; it weighed 62 oz. In three brains of boys about the same age examined by Dr. Beach the weights were 40½ oz., 39½ oz., and 46 oz. The cranium was increased in thickness anteriorly and posteriorly. The convolutions were very coarse, and the sulci not so well marked as usual. On slicing through the brain transversely the white matter was seen to be exceedingly increased in amount both relatively and absolutely. Unfortunately I did not have it examined microscopically. It appears from a remark of Dr. Beach that there were traces of recent meningitis in this subject.

Dr. Daniel Brunet¹ describes two cases of hypertrophy of the brain without induration occurring in idiots. The first of these entered the asylum at Dijon when fourteen years of age, and died three years afterwards apparently from exhaustion following upon repeated epileptic fits. He had been late in

¹ *Annales-Médico Psychologiques*; Paris, 1874, pp. 187-191.

learning to walk, and never spoke, but understood much of what was said to him. He was extremely malicious, attacked animals, children, and even people stronger than himself, and nearly killed one of his sisters with a pick. The epileptic fits at first did not occur oftener than once a year. The brain was hypertrophied, especially behind.

The cerebrum weighed	1450 grammes.
Cerebellum	157
Medulla and pons	25
	<hr/>
Encephalon	1632

Traces of inflammation were found both in the brain and membranes. The amorphous matter and the myelocytes were more abundant than usual in the gray matter of the brain, and the capillaries were numerous and much injected.

In the next observation the idiocy seems to have dated from the third year. The boy spoke a little, and could do a few messages. He had a younger sister who was also idiotic. The head was large. Having become maniacal when eighteen years of age, he was sent into the asylum at Dijon, where he died, after a stay of two months and a half, of superficial encephalitis of the anterior third of the brain. The encephalon weighed 1780 grammes. The right side of the cerebrum weighed 820 grammes; the left 790. As in the preceding case, there were evident traces of old inflammation of the brain and membranes.

CHAPTER XIV.

IDIOCY BY DEPRIVATION.

Its Nature.

Idiocy by deprivation means that condition of mind in which a child remains who is deprived of two or more of the principal senses—such as sight and hearing. This condition, if it be not idiocy, simulates it so closely, that it is needful to say a few words about it. As is finely stated in the aphorism quoted by Sir William Hamilton, “Cognitio omnis a mente primam originem, a sensibus exordium habet primum.”

A being deprived of sight and hearing, the two senses most useful in perception, is, even when in possession of a potential intellect of good capacity, in reality an idiot as far as its relations with the outer world go. It is a mere recipient of sensations, from which it cannot, without some very special culture, deduce sufficient explanations of the phenomena of the outer world for it to act like a reasonable being. Idiocy by deprivation is like a seed which does not sprout because it is kept away from sunlight and moisture, while incurable idiocy is like a seed in which the germinal faculty has been destroyed; and the higher grades of idiocy resemble seeds in which the germinal capacity is much impaired, and the growth enfeebled, so that they require unusual stimulants. I have met with several cases of idiots who were deaf; with others who were blind, or nearly so; and either of these deficiencies, of course, when combined

with mental torpor, is a very serious bar to instruction. In a child of ordinary capacity, deafness is a much greater obstacle to instruction than blindness ; but it may admit of some doubt whether this is the case with idiots, at least with idiots of the lower grade, where the power of seizing abstract ideas is deficient, and who often are unable to learn more of the outward world than is gained from observing its superficial phenomena. In one case already referred to, a boy who was sinking into an extremely obtuse condition from having become deaf and dim of sight, had his mental powers and faculty of expression aroused by being taught figurative signs, and to spell on his fingers.

Helvetius argued that the great cause of the superiority of man, and of one animal over another, lay in the tactile and prehensile power of the hands or other organs. The fallacy of such notions was ingeniously shown by Frederick Cuvier, who pointed out that the seal was an animal of wonderful sagacity, though unusually deficient in organs fitted for feeling or grasping.

ILLUSTRATIVE CASES.

The most interesting cases are those where a human being suffering from deprivation of two or three senses has one of them suddenly restored. A well-known instance of this kind was James Mitchell, who was born deaf and blind, but who suddenly gained his eyesight on being couched for cataract.¹

Laura Bridgman.

The famous case of Laura Bridgman, as well as that of

¹ See an account of these cases in the work *On Aural Surgery*, by William R. Wilde, already quoted, pp. 476-480. There is a good account of Laura Bridgman in *The Lost Senses*, by Dr. Kitto ; also one in Mr. George Combe's *Notes on the United States of North America*, and in Dickens' *American Notes*.

Meystre, and some others less known, are memorable examples of what a very skilful and patient education may do in awakening the dormant activity of the mind when the principal channels of sense are cut off. A good many accounts of Laura Bridgman have been published, and the late Dr. Howe of Boston purposed writing a book on the subject, which, it is to be feared, was cut short by the hand of death. He has left a sketch of the system of education which he pursued with this interesting creature in the Forty-Third Annual Report of the Perkins Institution and Massachusetts Asylum for the Blind. As this document is not for sale, and as Dr. Howe's remarks are extremely suggestive, though the same method could not be applied to children of deficient mental capacity, it is hoped that the following quotations will not be thought out of place :—

“I found in a little village in the mountains a pretty and lively girl about six years old, who was totally blind and deaf, and who had only a very indistinct sense of smell ; so indistinct that, unlike other young deaf mutes, who are continually smelling at things, she did not smell even at her food. This sense afterwards developed itself a little, but was never much used or relied upon by her. She lost her senses by scarlet fever so early that she has no recollection of any exercise of them.”

Dr. Howe then tells how he took her into his house at Boston and set about trying to educate her :—“I required her by signs, which she soon came to understand, to devote several hours a day to learning to use her hands, and to acquiring command of her muscles and limbs. But my principal aim and hope was to enable her to recognise the twenty-six signs which represent the letters of the alphabet. She submitted to the process patiently, though without understanding its purpose. I will here give a rough sketch of the means which I contrived for her mental development.

I first selected short monosyllables, so that the sign which she was to learn might be as simple as possible. I placed before her, on the table, a pen and a pin, and then, making her take notice of the fingers of one of my hands, I placed them in the three positions used as signs of the manual alphabet of deaf mutes for the letters p e n, and made her feel of them, over and over again, many times, so that they might be associated together in her mind. I did the same with the pin, and repeated it scores of times. She at last perceived that the signs were complex, and that the middle sign of the one, that is, the e, differed from the middle sign of the other, that is, i. This was the first step gained. This process was repeated over and over hundreds of times, until, finally, the association was established in her mind between the sign composed of three signs, and expressed by three positions of my fingers, and the article itself, so that when I held up the pen to her she would herself make the complex sign; and when I made the complex sign on my fingers she would triumphantly pick up the pen and hold it up before me, as much as to say, 'This is what you want.'

"Then the same process was gone over with the pin, until the association in her mind was intimate and complete between the two articles and the complex positions of the fingers. She had thus learned two arbitrary signs, or the names of the two different things. She seemed conscious of having understood and done what I wanted, for she smiled, while I exclaimed inwardly and triumphantly, 'εὐχρηκα! εὐχρηκα!' I now felt that the first step had been taken successfully, and that this was the only really difficult one, because, by continuing the same process by which she had become enabled to distinguish two articles by two arbitrary signs, she could go on and learn to express in signs two thousand, and finally the forty and odd thousand signs or words in the English language.

"Having learned that the sign for these two articles pin and pen was composed of three signs, she would perceive that, in order to learn the names for other things, she had got to learn other signs. I went on with monosyllables, as being the simplest; and she learned gradually one sign of a letter from another until she knew all the arbitrary tangible twenty-six letters of the alphabet, and how to arrange them to express various objects,—knife, fork, spoon, thread, and the like. Afterwards she learned the names of the ten numerals or digits, of the punctuation and exclamation and interrogation points, some forty-six in all. With these she could express the name of everything, of every thought, of every feeling, and all the numberless shades thereof. She had thus got the 'open sesame' to the whole treasury of the English language. She seemed aware of the importance of the process, and worked at it eagerly and incessantly, taking up various articles, and inquiring by gestures and looks what signs upon her fingers were to be put together in order to express their names. At times she was too radiant with delight to be able to conceal her emotions.

"It sometimes occurred to me that she was like a person alone and helpless in a deep, dark, still pit, and that I was letting down a cord and dangling it about in hopes she might find it, and that finally she would seize it by chance, and, clinging to it, be drawn up by it into the light of day and into human society. And it did so happen; and thus she, instinctively and unconsciously, aided in her happy deliverance. After she had mastered the system of arbitrary signs made by the various positions of the fingers used by deaf mutes and called dactylology, the next process was to teach her to recognise the same signs in types with the outlines of the letters embossed upon their ends. Thus with types, two embossed with p, two with n, one with e, and another with i, she could, by setting them side by side in the quadrilateral

holes in the blind man's slate, make the sign of pen or pin, as she wished ; and so with other signs. The next process was to teach her that when a certain kind of paper was pressed firmly upon the ends of these types, held close together and side by side, there would be a tangible sign on the reverse of the paper, as pin or pen, according to the position of the three types,—that she could feel of this paper, distinguish the letters, and so read,—and that these signs could be varied and multiplied, and put together in order, and so make a book.

“Then she was provided with types having the outlines of the letters made with projecting pin points, which, when pressed upon stiffened paper, pierced through, and left a dotted outline of each letter upon the reverse side. This, she soon ascertained, could serve for writing down whatever she desired, and be read by herself ; and also could be addressed to friends, and sent to them by mail.

“She was also taught to write letters and words with a lead pencil, by the aid of the French writing board, which is the most simple, most effective, and cheapest method ever yet invented.”

Dr. Howe found great difficulty in teaching abstract relations and qualities to his interesting pupil ; and this is also a difficulty with the deaf and dumb. It was thus overcome :—

“She knew that some girls and women of her acquaintance were very sweet and amiable in their tempers, because they treated her so kindly and caressed her so constantly. She knew also that others were quite different in their deportment, that they avoided or repelled her, and were abrupt in their motions and gestures while in contact with her, and might be called therefore sour in their tempers. By a little skill she was made to associate, in her mind, the first person with a sweet apple, the other with a sour apple ; and so there was a

sign for a moral quality. This is a rough illustration ; but it is hard to explain the process by which any children come to understand the names of things in the abstract or moral qualities.

“ And so she went on diligently and happily for a score or more of years, until at last she acquired a large vocabulary of words, and could converse readily and rapidly with all deaf-mutes and all persons who could use these signs. She could read printed books readily and easily, finding out for herself for instance any chapter and verse of Scripture. She could also read letters from her friends in pricked type, or by the Braille system of points. She could also write down her own thoughts and experiences in a diary, and could keep up a correspondence with her family and friends by sending to them letters in pencil, and receiving their answers either in pricked letters, which she could read by the touch, or letters written with ink or pencil, which could be read to her by some confidential seeing person.”

Laura still lives, and is now about forty-five years of age ; but her kind preceptor died about a year ago, after having lived a long, varied, and noble life.

Dr. Howe was induced to begin and persevere in the difficult task of educating Laura Bridgman by the conviction that the human intellect possessed the peculiar gift which the Greeks called the *λογος*, the faculty which reasons and accompanies reasonings with spoken symbols :—

“ I knew that Laura must have this innate desire and disposition, and that, although by reason of lack of sight and hearing, she could not follow it in the usual way, and imitate the sounds made by others, and so speak, she would readily adopt any substitute which should be made comprehensible to her in her dark and still abode.

“ In this faith I acted, and, by holding to it firmly, succeeded.

“Without the belief, and indeed the certainty, that the mind of Laura was endowed with some attributes which the most highly-gifted brutes utterly lack, I should not have attempted to bring her out of her mental darkness into light, any more than I should have attempted to bring out the mind of my dog Bruno, which seemed to know as much as Laura then did, and which I loved and prized almost as much as if he had been human.”

Oliver Caswell.

The same document has an account of a boy named Oliver Caswell, blind and deaf from infancy, who was also educated by Dr. Howe, with the assistance of Laura Bridgman.

Meystre.

The following account of Meystre is taken from Forster's *Life of Charles Dickens*. When he saw him at Lausanne, in Switzerland, he was a young man of eighteen, “born deaf and dumb, and stricken blind by an accident when he was about five years old. The director of the institution is a young man of great ability and most uncommonly prepossessing appearance. He propounded to the scientific bodies of Geneva a year ago (when this young man was under education in the asylum) the possibility of teaching him to speak ; in other words, to play with his tongue upon his teeth and palate as if on an instrument, and connect particular performances with particular words conveyed to him in the finger language. They unanimously agreed that it was quite impossible. The German set to work, and the young man now speaks very plainly and distinctly, without the least modulation of course, but with comparatively little hesitation, expressing the words aloud as they are struck, so to speak, upon his hands, and showing the most intense and wonderful delight in doing it.

This is commonly acquired, as you know, by the deaf and dumb who learn by sight ; but it has never before been achieved in the case of a deaf, dumb, and blind subject. He is an extremely lively, intelligent, good-humoured fellow, an excellent carpenter, a first-rate turner, and runs about the building with a certainty and confidence which none of the merely blind pupils acquire. He has a great many ideas, and an instinctive dread of death. He knows of God as of Thought enthroned somewhere."

A Deaf, Dumb, and Blind Girl.

Dickens was also much struck by the sight of a girl, ten years old, born deaf, dumb, and blind. "And yet," he writes, "she laughs sometimes—Good God ! conceive at what—and is dreadfully sensitive from head to foot, and very much alarmed for some days before the coming on of a thunderstorm. She laughs frequently, and also claps her hands and jumps, having, God knows how, some inward satisfaction. I never saw a more tremendous thing in its way in my life than when they stood her, the other day, in the centre of a group of blind children, who sang a chorus to the piano, and brought her hand and kept it in contact with the instrument. A shudder pervaded her whole being, her breath quickened, her colour deepened, and I can compare it to nothing but returning animation in a person nearly dead. It was really awful to see how the sensation of the music fluttered and stirred the locked-up soul within her."

Kaspar Hauser.

In the sad and mysterious case of Kaspar Hauser we have an instance of superficial idiocy produced, not by loss of the senses, but by deprivation of the power of exercising them.

On the 26th of May 1828 a young man was observed tottering about near the Hallergate of Nuremberg. On examination it was found that he could only speak a few words, meaning, "I will be a trooper, as my father was;" and that he was scarcely able either to stand upright or to direct the motion of his legs. In fact his appearance was like that of a child learning to walk. The soles of his feet were found to be as soft as the palms of his hands, and covered with blisters, while the condition of his knees seemed to indicate that they were seldom flexed. He was found unable to speak and perfectly ignorant of the outer world, rejecting meat, but apparently relishing bread and water. On a piece of paper being placed before him, he took the pen and traced the words Kaspar Hauser. A letter was found in his possession, but apparently it was only intended to deceive. He was believed to have been born in 1812. This mysterious affair naturally excited great curiosity, and was the subject of a careful official inquiry. Professor Daumer took the young man to his own house to educate him, and soon made out that he possessed good faculties, but that they never had been brought out from the artificial isolation in which he had lived.

When he was able to record his recollections, he said that he never remembered to have been anywhere save in a small vaulted chamber, where he sat leaning against the wall. A man occasionally visited him who never spoke. Bread and water were left by him when he was asleep. It was believed that he was occasionally washed during his sleep, his nails cut, and his clothes changed, and he recognised the taste of opium as having been now and then mixed with his water. Some toys were given him to play with, but he never remembered to have seen either rat or mouse, or any living thing save the man who at last taught him the few words he could repeat, made him practise writing his own name, and finally brought him to the place where he was found—at the gate of Nuremberg.

This story caused a good deal of speculation and discussion. Amongst the papers of Anselm von Feuerbach, the President of the High Court of Appeal in Bavaria, there is a memoir addressed to the Queen Dowager, trying to prove that Kaspar Hauser belonged to a princely house of Germany, and Feuerbach thought that some dreams which he related were revived reminiscences of life in a palace. Daumer, his preceptor, says that Hauser remembered a few Hungarian words. He was murdered on the 14th of December 1833, probably by some one who wished the secret of his origin to remain undiscovered. The truth of his singular story has been questioned—as far as I can judge, on sufficient grounds.

Eschricht, a Danish physiologist, brought forward the theory that Kaspar Hauser was a case of cure from idiocy—a notion easily refuted by his old preceptor Daumer.¹

Daumer's observations upon Hauser's condition, when first committed to his care, are exactly what might have been expected from his situation :—

He could say nothing but the two phrases which the man had taught him. He had the mind of a child, spoke of himself in the third person, mistook inanimate for living things, and natural productions for things made by the hand, and did not distinguish between jest and earnest. Daumer gives a number of instances of his wonderful power of seeing in the dark. At first he did not attend to sounds, but was soon deeply stirred by music. He was very sensitive to odours. Ideas accumulated in his mind with extraordinary rapidity. His memory was wonderfully accurate, especially in recalling particulars to which ordinary people pay little attention, such as how often he had eaten this or that thing. On the fourth month after his apparition he became ill, apparently from the intense working of his mind, and the rapid course of his education had for a time to be suspended. The

¹ *Enthüllungen über Kaspar Hauser.* Frankfurt, 1859.

- delicacy of his senses and rapidity of his acquisitions gradually ceased, which Daumer somewhat fancifully attributed to his use of flesh meat, and at the time of his death he did not seem to differ much from other young men. An examination of his brain was made after the murder. The liver was found enlarged. The skull was somewhat thicker than usual, and the brain rather small, not quite overlapping the cerebellum, which was larger in proportion to the cerebrum. The tissue was found healthy, but the convolutions were broader and simpler than usual.

“In this case,” writes Dr. Heidenreich, “the mental development was not hindered by the deficient growth of the brain, but the brain was retarded in its development by the want of all mental activity and excitement.”

CHAPTER XV.

ON THE GROWTH OF IDIOTS, AND OTHER MISCELLANEOUS- MATTERS.

On the Classification used.

PERHAPS it might be thought that friendly feeling had something to do with the kind reception which my classification has met with in some quarters in our own island ; but I could not claim from the German and French scientific periodicals, such as the *Zeitschrift für Psychiatrie*, the *Psychiatrisches Central Blatt*, and the *Annales Médico-Psychologiques*, anything more than the courtesy generally afforded by scientific men to a fellow-labourer. The criticisms to which the classification has been subjected have, in my fond estimation, rather helped me to discover and amend its weak points than forced me to recognise it as untenable. I especially refer to the keen strictures of my friend Dr. W. A. F. Browne. The most formidable objection seems to be that one case might fall under several definitions ; for example, a paralytic or hydrocephalic idiot might be also epileptic. This is no doubt an objection, but then it applies to the usual nosology of diseases, in fact to every conceivable nosology ; for example, we often find pleurisy conjoined with phthisis or with pneumonia, or we may have all three at once. In the same manner a man may have measles and scarlet fever, or syphilis and rheumatism at once, or mania and melancholia alternately. All nosologies have their weak points, and it is a great misfortune for a medical man to expect too much

from them, or to trust too much to them, as some do, who think they can treat a patient if they but know the name of his disease. The name is always some help, but ought not to excuse the practitioner from studying the individual bearings of the case. Many, if not most, of my separate groups have been recognised in one form or other by writers on the subject, and in several instances in the writings of those who have objected to them.

A number of facts have been stated about idiocy, and I believe that the form chosen to exhibit them makes them come out more clearly than any other way known to me. If any one shows that they could be stated in a clearer or more methodical and scientific form, it is to be hoped that I shall have the sense to be able to recognise his suggestions and the opportunity of adopting them.

Growth of Idiots.

There are some observations which have been made upon idiots, arranged in subdivisions not quite the same as those used in this book, which are too valuable to be passed over. I allude especially to Dr. Kind's¹ observations on the increase of the length of idiots. Dr. Kind has not been able, as far as his means of knowing reach, to find any decided difference in size between an idiot and a normal child during the first five years of age. Often enough it is said that the child has been small and weak from birth. As often, on the other hand, it is asserted that it grew like other children. There seems, however, to be a difference in size between cretins and other children already noticeable at birth. The following table gives the yearly difference between the normal average

¹ *Ueber das Längenwachsthum der Idioten*, von Dr. Kind, Director der Idioten-Anstalt zu Langenhagen (Separatabdruck aus dem Archiv für Psychiatrie).

length and the length of idiots at different periods of life, taken in millimètres.

Years.	Male.	Female.
5	0	0
6	14	16
7	40	30
8	52	46
9	61	49
10	80	62
11	95	79
12	110	93
13	129	101
14	125	104
15	113	112
16	116	113
17	118	112
18	118	107
19	128	113
20	104	113
25	65	149

From this table it will be seen that at thirteen years of age the average height of a male idiot is less by 129 millimètres than an ordinary boy, and at sixteen a female idiot is shorter by 113 millimètres than an ordinary girl.

Dr. Kind thinks that the dwarfish idiots do not live so long as the others, and this is to be considered in taking the average height of adult idiots. The growth of idiots is not only less, but it goes on more slowly. They grow more after sixteen years of age than ordinary people, though they never attain the average height.

As rickets and scrofula are known to depress the height, Dr. Kind separated his idiots into the scrofulous, the rachitic, the paralytic, the epileptic, and idiots in general not going under the preceding four classes.

It appears from his carefully-framed tables that epileptic idiots grow most. The later the epilepsy the less effect it has

upon the growth. Paralytic idiots do not grow well, and fall below the average of the rest.

Scrofula and rickets had an influence in depressing the height; but those idiots who neither had scrofula, rickets, epilepsy, nor paralysis, nevertheless fell below the usual rate of increase of normal children.

Dr. Kind, in a series of very careful observations upon the height of idiots compared with the size of the head, shows that the skulls of idiots are in general bigger than what one might have anticipated from their low stature.

Imbecile girls, about or a little after the time of puberty, often get very stout, some of them enormously so, as in the accompanying portrait of a girl of sixteen years old, who weighs 166 pounds.



Fig. 12.

Imbecile Girl, very stout.

The Criminal Class.

People who have much to do with criminals have many times remarked a deficiency of intellect often as low as

imbecility, combined perhaps with a brutality engendered by low habits, and an amount of cunning which the nature of their life renders necessary. Imbeciles of the class with which I have to do have few bad tendencies, though of course they are easily led away, and have no proper idea of the distant consequences of actions. I never saw an imbecile who appeared naturally malicious, save one, a boy, who was also born deaf. When at home he used to beat his little brothers and sisters unmercifully. Once in the Institution the governess received a violent blow on the back of the head, and on recovering from her emotion and looking round, she saw this boy sitting quietly a few feet behind her quite immovable, but watching as usual with his dull grey eyes. He would occasionally pinch or prick the smaller children, especially selecting those who could not speak, but did it rarely, and with great caution. His deafness, combined with imbecility, prevented him from learning much. When he returned to his own home he was not so easily managed. His mother, who was a very respectable woman, assured me that he used to put skewers into the fire, which he intended to run into her. But to return to the point, Dr. Kind quotes some figures to show that habitual criminals are in general a short and stunted class; and Professor Moriz Benedikt, in an address translated in the *Journal of Psychological Medicine*,¹ has endeavoured to show that there are certain peculiar forms of the head frequently met with in malefactors, especially a diminution of the space between the mastoid fossa and the highest part of the occiput, what he calls occipital brachycephaly, flatness of the occiput, and vertex steepness, that is, the highest part of the crown is farther back than usual. He dissected four brains of murderers and found peculiarities which, had they been known at their trials, ought to have saved them from the professor's scalpel.

¹ New Series, vol. ii. part i.

CHAPTER XVI.

ON INSANITY IN CHILDREN AND INSANE IDIOTS AND IMBECILES.

INSANITY in children is a rare affection. According to Boutteville, the proportion of insane children to insane adults is from five to nine years old as 0·9 per cent, from ten to fourteen, 3·5, and from fifteen to nineteen, 20 per cent. Out of 21,333 recorded cases of insanity, eight were under ten years of age.¹ The distinctive diagnosis between insanity in children and idiocy presents no difficulty; the intellectual hebetude of the idiot is wanting, and the insane child shows energy and passion quite different from the sluggish feeble cast of idiocy. Dr. Maudsley has a good chapter on the subject in his *Physiology and Pathology of the Mind*. He shows, with his usual power of language, that till a child learns to distinguish sensations he can have no real hallucinations, and till he has gained some ideas the earliest symptoms of brain diseases affecting the mind would naturally be restlessness, crying, and screaming; but then it would be difficult to prove in an infant that this was not owing to bodily pain. Great fretfulness, striking, biting, and destructiveness, which are occasionally observed in children from three to four years of age, as Griesinger² says, are to be regarded as true mania. "These sometimes alternate with

¹ *Obscure Diseases of the Brain and Mind*, by Dr. Forbes Winslow. London, 1863, pp. 110-111.

² *Mental Pathology and Therapeutics* (English Translation). London, 1867, p. 142.

epileptic attacks, with chorea, with stupor, with ecstatic cataleptic states (in which the patients remain for hours or even for days, as if quite absorbed, with open eyes, fixed countenance, and peculiar position, sometimes suddenly breaking out into loud cries, etc.), as if there existed here the most manifold intermediate states between epileptic, choraic, somnambulistic, and mentally diseased states."

Insanity in children is generally connected with tubercular meningitis, hyperæmia of the brain, or the exhausted state of the constitution following fevers. It is averred that Indian hemp has been found very useful in treating the restlessness which accompanies the mental disorder. The associated chorea is often successfully treated; but, as a general rule, insanity in childhood, when it lasts for any time, is seldom completely cured. It either ends in death or imbecility, the morbid processes having a tendency to injure the nutrition of the growing brain. The most frequent forms of insanity are mania and melancholia; but cases exhibiting the other mental forms generally described have been found, save perhaps insanity with fixed delusions.

Dr. Kelp, in a paper on insanity in children, reproduces the case of a girl, six years of age, who was admitted into an asylum, suffering from mania with convulsions, and complete aphasia. Though unable to utter a syllable she could move the tongue and lips with ease. She passed into a shy, tearful condition; the symptoms of insanity soon disappeared; but she had again to go through the process of learning to speak like a little child. In five months she was dismissed, when she could speak fluently, though somewhat slowly.

Dr. Kelp also gave a case of *folie circulaire*, in a boy of thirteen. He was a dull child, and had been so often punished at school, on account of his slow progress, that he became deeply melancholy, and tried to kill himself. The melancholy

alternated with mania, in which he whistled and sang day and night, tore his clothes, and was filthy in his habits.¹

Dr. Meschede, of Schwetz, who considers that insanity is much more frequent in childhood than has been supposed, gave a case of the kind occurring in a girl of five years and nine months old. She had been quite healthy up to the fourth year of her life, after which she had intermittent fever. At the close of the fifth year she suffered from hooping-cough, which lasted for fourteen weeks, and was accompanied by frequent bleedings at the nose. Soon after, the first symptoms of mental derangement were observed. She complained of sudden feeling of cold or heat in the head, and this was soon succeeded by hallucinations of vision, hearing, and common sensation. She said she saw her playfellows appear at the window to strike her, saw bread lie upon an empty plate, and believed that her food contained injurious substances. She heard her little sister, a child of five weeks old, distinctly cry while she was fast asleep, and the room was quite quiet. She complained that her other sister who was three years old had affronted and spoken ill of her; that she had thrown a piece of wood after her, and had stuck it in her nose, and had struck her with a whip. She complained that her mother had put things in the bed which made it uncomfortable, and said that worms were crawling upon her eyes and hands. She was often in a state of terror that some one would come to steal her and her sister, and would not be appeased until her mother had locked the doors.

These paroxysms of insanity occurred with intervals of sanity, and were not accompanied by any symptoms of fever or inflammation. After a time, however, an attack of eclampsia supervened, which was succeeded by cerebral congestion, ending in death.

I have seen a case of insanity in a girl aged eleven, where

¹ *Zeitschrift für Psychiatrie*, xxxi. Band, 1 Heft.

the most prominent features are great oddity of expression, and complaints of having been subjected to ill-usage, which seem to be delusions. She takes severe epileptic fits.

In an article on the *Pathology of Pyromania*, Dr. Fr. Meschede¹ gives a complete account of a young girl called Nathalie X., who had been healthy up to the third year, when she was seized with epileptic fits. She became very mischievous, tearing her clothes, stabbing a horse with a knife, and attacking children. She had enough of intelligence to learn to read and write, but was too mischievous to be kept at school. If the fits were absent for a longer period than usual, she behaved like a child of ordinary understanding. When twelve years old she thrice tried to set her father's house on fire, and to put out the eyes of her aunt's children with a hair-pin. She said that an inward voice always told her what to do. Soon after she was taken away by a man who promised to cure her, and a fortnight after she set his house and barns on fire, so that they were burned to the ground. On this account she was sent to the asylum at Schwetz, which she twice set on fire, in spite of continual watching. After being four years in the asylum she died of phthisis. During the whole time she was subject to frequent epileptic fits, and was very mischievous, with erotic proclivities, and a tendency to make cruel attacks upon unoffending people.

The lesions found on examination were the right cavity of the cranium larger than the left, the vessels also larger, and behind the sella turcica, upon the clivus, a prominent osseous growth in the form of a tuft (ein Stark vorragendes Osteophyt in form einer Crista). The pons and medulla oblongata, and especially the corpora olivaria were hardened.

¹ *Zeitschrift für Psychiatrie*, xxix. Band, 1 Heft. Berlin, 1872. Dr. Ludwig Meyer, xiv. Band, s. 227-257, had already given some description of this case.

The whole brain was tougher than usual, and the arachnoid coat, where it forms a loose membrane, was opaque and thickened, especially over the top of the temporal convolutions. Dr. Meschede is inclined to trace all the symptoms to the osseous growth causing epilepsy, and leading to a chronic inflammatory process in the adjacent membranes and nervous tissue, and consequent mental derangement and morbid impulses.

Dr. Rösch¹ gives seven cases of insanity in children, which he has carefully studied, two of which are given below.

Maria Louisa, when nine months old, had great congestion in the head, which soon passed into true epilepsy. Her intelligence, however, was lively ; she learned to speak, and was very observant. They soon noticed an uncommon distraction and restlessness, and a great sensibility to light, "a species of light hunger," which she continually sought to gratify by gazing at the sun, candle-light, and even the moonlight.

When eight years old she was admitted into the Maria-berg. The restlessness and sensibility to light still continued. All efforts to instruct her were fruitless, as it was impossible to fix her attention ; nor were their attempts to treat the epilepsy more successful. After being two years in the Institution she died of exhaustion from repeated fits. The principal lesions found on examination of the body were adhesions of the dura mater to the skull along the longitudinal sinus, which was full of clots, and the veins running into it were varicose. There was a congested patch on the right hemisphere, and a small apoplectic spot on the left one. The convolutions were flattened ; the brain tissue very firm, and the grey matter much increased in proportion to

¹ See *Beobachtungen über den Cretinismus*, etc. ; Zweites Heft, Tübingen, 1851, p. 81.

the white. The dura mater of the cord was congested down to the fifth vertebra.

P. M., daughter of healthy parents, had jaundice and cancrum oris, and a skin eruption followed by fits, which left her almost in a lifeless condition. She lost her hearing; but her intelligence did not seem to be affected. In her seventh year she went out in the rain, and was found lying in a pit. Next morning she had chorea. From this time a change was noticed in her condition. She was indifferent to every one, forgetful, and would not do any work; would not allow herself to be washed or her hair to be combed; would bear no contradiction, and used to scream loudly. Her insanity lasted for nine months. At last she was brought to the Mariaberg. In six months she recovered, and was sent to a deaf and dumb school, where she made fair progress. This is the only case of recovery recorded by Dr. Rösch. Two of these insane children committed suicide from melancholy, caused by frequent chidings and punishment.

Dr. Durand-Fardel¹ has collected twenty-six examples of children who attempted suicide; at least seven of these were girls. Twenty of them accomplished their design. Most people would say that these children were insane, though with many of them no derangement was suspected before the suicide. The most frequent motive was being punished or harshly treated by their parents or teachers. In some cases the motives are very childish. A boy of nine years old killed himself because he lost a bird which he was fond of. A boy of twelve hanged himself because he was no higher than twelfth in his class. He gives an account of a boy who hanged himself without any known motive; after which a boy of fourteen and a half years, who was at the funeral, hanged himself, apparently out of imitation. Sometimes great

¹ *Étude sur le Suicide chez les Enfants*, par M. le Dr. Max Durand-Fardel. *Annales Médico-psychologiques*, 1855, p. 61.

determination is shown. In one case a boy of twelve years old, for accidentally breaking his father's watch, was shut up in a room with a bit of dry bread. In the morning it was found he had hanged himself by running a nail into the ground, to which he attached a cravat. His knees were bent, and nearly touched the ground; so he must have had the resolution to hold them in that position till he was insensible, for at any time he could have escaped death by simply putting his feet to the ground. He was said to be an intelligent child, and liked by his companions. He never complained of being badly treated by his parents, but said that if there was a blow to get from his father it came to him, and never to his sister, who was always preferred before him.

Dr. Durand-Fardel remarks—"Suicides in children are almost always characterised by their *sang froid* and pre-meditation. Before the time of puberty, which changes children into men, the idea of death is not accompanied by that sentiment of horror which, often at a later age, is sufficient to preserve one from suicide. Until a certain age children do not understand death, later they do not realise it. We have seen many children who were big enough to understand that they were going to quit life, but we never remember to have heard any expression of terror or despair."

Esquirol¹ gives an account of a little girl six and a half years of age, the daughter of a workman. She was of good intelligence for her age, and had learned to read and write. The girl was only two years old when her father married for the second time, but she lived with her grandparents until she was five years of age. They were discontented with the marriage, and often spoke against the stepmother before the child. On her father taking her home to live with him she used every opportunity to scratch, strike, and kick her stepmother, in order that she might die. She was sent back to

¹ *Des Maladies Mentales*, tome ii. pp. 115-119.

her grand-parents for two years, but on returning again, at the age of seven years and four months, she renewed her attacks on the stepmother, and threatened to kill her and her little brother, who was out nursing, and whom she had never seen. She would sometimes seize upon scissors or knives, with the avowed object of killing her stepmother. Her father had often punished her, but could never get her to promise to abandon her designs. Esquirol then examined the child, who had heard her stepmother's story with indifference, and who now answered his questions with perfect calmness.

E.—Why do you wish to kill your mamma?

Child.—Because I don't like her.

E.—Why do you not like her?

Child.—I do not know.

E.—Has she ill-used you?

Child.—No.

E.—Is she good to you? Does she take care of you?

Child.—Yes.

E.—Why do you strike her?

Child.—To make her die.

E.—Your blows cannot kill her. You are too small for that.

Child.—I know that. One must suffer before they die. I wish to make her turn ill, that she may suffer and die, for I am too little to kill her with one blow.

She said that she had no desire to kill her father, though he sometimes beat her, but avowed her intention of killing her little brother, and said that she had asked her father to take him home from the nurse in order that she might have an opportunity of killing him. Esquirol gives, from his great experience, even more repulsive stories of insane murderous propensities in a child. In the small town of Bellesme they found in a well the body of a little girl of two years of age, and two days afterwards another child of two years and a

half. It was found out that a little girl of eleven years of age had led these children to the well and pushed them in. This girl was known for her malicious habits, and never let slip an opportunity of ill-using or beating children less than herself.

I have seen some idiots where the destructive propensity was very marked. An old couple brought me several times a boy of seven or eight years of age, of whom they were very anxious to get rid, and no wonder. He tried to seize and tear everything that met his eye in my office, and gnawed the marble chimney-piece with his teeth. He would rush out of his father's house and into those of the neighbours, breaking and destroying everything he could get hold of ; clocks, which in cottars' houses in Scotland have often no cases, were especially singled out for his destructive attacks. When the carters stopped at the village public-house and went in to refresh themselves, he would rush out and throw stones at the horses till they ran away. Inexorably mischievous, he was perpetually getting his parents into trouble and expense. This is what Dr. Laycock called a theroid or wild beast idiot. Some imbecile children, without being so markedly theroid as this, are incorrigibly mischievous, and often show a surprising amount of cunning in carrying out what they design. We had a boy who was always trying to tease the others, stealing, turning on the gas to let it escape, or attempting to set things on fire ; when punished he would howl but never shed a tear, and the effect soon passed away. I never saw him angry, nor show any ill will to those who had punished him. He was detected putting stones on the railway line, and had to be removed at the age of fourteen. Though of short stature he was physically strong, and unusually energetic for an idiot. He might have been taught to work for his bread, could his tendency to mischief have been kept within bounds.

I have seen imbeciles affected with mania, melancholia, and delusions.

K. G., the son of a man of drunken habits, came from Gartnavel Asylum to the Larbert Institution in August 1869, where he was admitted by my predecessor Mr. Addison. He could put on his clothes and converse freely. Apparently he had always been wild and intractable. He commenced to be very excitable about the beginning of December 1870, and in the beginning of February 1871 passed into a state of acute mania. He used violent and obscene language, was ready to kick and strike, and rose at night and purloined articles, which he destroyed or burned. He was confined for some time in a room, when he made a hole in the plaster of the wall with a spoon, pulled down some of the lath, and nearly made his way into the adjoining apartment. He was removed to a carpenter's booth for safety, there being no room in the house strong enough to hold him. He tore a great many blankets to shreds. On the 13th of March 1871 he was sent to Gartnavel, where he still is. He works out of doors, but is liable to periodical outbursts of fury.

K. N., supposed to have had encephalitis when eight months old, of strumous constitution, blind of one eye, and somewhat dull of hearing. He was rather unsociable, taciturn, and easily annoyed, but could speak freely when he chose. He was taught to write well, though he never could read even what he wrote. He was enthusiastically fond of drawing and of carving in wood. He used to make original drawings, and fabricated little toys which he would sell to the other boys. The first symptom of insanity was his smashing panes of glass in the passage and other places where he would not be readily noticed. When asked why he did so, he said that he liked to see the glass fly. This went on for about six months. One day he took out of his pocket a knife which he had got hold of, and deliberately made an incision in a boy's hand. When asked why he did so, he gravely said "I thought Andrew wanted me to do it." At last one night he

produced a hammer, and rushed through the boys' dormitory striking at everybody. After this it was thought too dangerous to keep him in the house, and he was sent to an asylum. I am told that he is still addicted to breaking glass, and is liable to outbreaks of passion. He was seventeen when he left us, and had been above seven years in the house.

K. C. was an imbecile girl who had been educated at home. Could read a little, and do work. When seventeen years of age she became solitary, sleepless, irritable, and troublesome, and had some delusions, especially that a man in the neighbourhood used to throttle little children and throw them down dead by the roadside. This, she assured me, was quite true, in an entirely convinced voice. I only saw her once, and heard no more about her.

H. S. was seventeen years of age when admitted. The imbecility was believed to be from birth. The head was small, palate rather high, teeth beginning to decay, complexion very fair. She could dress and feed herself, and was said to have been good-tempered save when ill, when she got peevish and jealous of the younger members of the family. When admitted was much emaciated. Her mother said that she had suffered from some disease of the abdomen, but either could not or would not explain what it was. From the beginning the girl was very obstinate and in low spirits, and for more than a month was in the hospital, after which she improved and was sent to school. She learned to sew a little, and to know a few letters, but was always peculiar, and did not like the children to come near her. After three months her health got worse, and her spirits became lower than ever. She frequently moaned all night, cried when anybody touched or looked at her, and was very perverse and dirty in her habits. It was a clear case of melancholia. As imbeciles in general are merry and good-natured, she met with little commiseration from the other children, who called her, in their expressive

Scotch, the "whinging lassie." She had a barking cough, with harsh dry breathing, cooing râles here and there in the chest, and slight dulness under the left clavicle, with occasional diarrhoea not easy to treat. Hence tubercle was supposed to exist. The spleen was enlarged, the feet were swelled, and the face sometimes flushed on one side. I suggested that her mother should take her away for change of air, when she came and removed her. I believe the girl died about two months after "of bronchitis and diarrhoea." There is very little doubt that the melancholia had preceded her entry to the Institution.



Fig. 13.

Imbecile Girl with Melancholia.

Dr. Wells¹ tells us that amongst cretins of the higher degree, more especially when neglected or ill treated, attacks of mania are by no means uncommon. Under its impulse, as has been related by Wenzel, murder has actually been committed. Other authors have mentioned a peculiar suicidal

¹ *Cretinism and Gottre*. London, 1845, p. 58.

form of this affection, which prompts the wretched maniac to attempt self-destruction by throwing himself into the fire. According to the Sardinian report these maniacal attacks in cretins are rare. At the great lunatic asylum of Bassens, near Chambéry, in Savoy, I only saw one cretin. He was about twenty years of age, and said to be very malicious.

CHAPTER XVII.

THE SENSORY AND MENTAL DEFICIENCIES OF IDIOTS.

THE essential deficiency of idiocy consists in want or hebetude of the intellect, not in imperfection of the senses. Nevertheless, as we have seen, the want of two or more of those senses most employed in perception, sight, hearing, and touch, produces a result closely resembling idiocy. A being destitute of sight, hearing, and touch, could never so connect itself with the outer world as to show anything beyond the feeblest mental manifestations, and would thus be regarded as an idiot. Indeed, long ago, uneducated deaf mutes were regarded by the laws as idiots ; and, without education, a deaf mute in many things resembles an idiot. But now an educated deaf mute can inherit property, deliver evidence, and enjoy the usual rights of rational beings. In idiots the senses are often more or less defective.

Touch.

The sense of touch is often imperfect, but, from the mental dulness, it is difficult to ascertain the nature and degree of the imperfection. Direct experiments, such as noting the distance at which the two extremities of a pair of compasses can be distinguished as two and not one impression being applied to the skin, would be of little use here. Idiots cannot be taught to take enough of interest, or pay enough of attention, to sensations of this kind ; and their replies to questions

would be of little value. In the idiotic we do not meet with that total want of sensibility to pain which is not unfrequently observed amongst the insane; but it is certain that idiots often endure with indifference blows and other injuries which would be very painful to an ordinary person, and they occasionally scratch or cut themselves in a way which no one would do who had the feeling of pain ordinarily following such injuries. We have a boy in the house who pulls out his hair when anything annoys him. He will even seize hold of a person's hand, and guide it to his head, apparently to get his hair pulled without personal exertion. Not long ago I saw a woman who said her daughter seemed deficient in the feeling of bodily pain. "How do you know that?" asked I. "Because," answered she, "if I beat her, she does not seem to mind; but if she loses anything she begins to cry." An epileptic idiot once got a severe burn with nitric acid, which he took almost with indifference. In this boy the feeling of pain appears decidedly dull. A powerful application of the induced electric current seems to cause him no great uneasiness, but he can distinguish rough cloth from smooth by feeling it with his fingers, and his sensibility to heat appears to be normal. We read of idiots sleeping without cover in the open air, as if they were insensible to cold; others appear to be indifferent to warmth, not drawing near the fire in cold weather. The Report of the Sardinian Commission states that cretins are frequently insensible both to cold and heat. Stahl¹ remarks that they generally endure cold and heat without being much put about.

It seems to me that observers occasionally fail to allow for the slowness of idiots to resent external impressions. We see

¹ "Gegen äussere Eindrücke sind sie ziemlich unempfindlich; so ertragen sie Hitze und Kälte ohne besondere Belästigung."—Beitrag zur Pathologie des Idiotismus Endemicus genannt Cretinismus, in den Bezirken Sulzheim und Gerolzhofen in Unterfranken des Königreichs Baiern, von Dr. Karl Stahl bei der Akademie eingegangen den 18 März 1843.

some sane individuals show their feelings of pain or pleasure in a very lively manner ; others much less so ; nor can we always put this down to mere difference in degree of sensation.

Selecting some cases in our Institution, we tried to test their sensibility to heat by immersing their hands in warm water, but found that they always withdrew them when it became unpleasantly hot. They did not seem able to endure a higher temperature than I could myself. This was true even of those who seemed indifferent to knocks and cuts, and who were believed to be deficient in tactile sensibility. Scaliger long ago remarked that in paralysis, heat is felt after the power of apprehending gravity is gone." "In many patients," writes Dr. Grabham, "general sensation is very low in degree, the extraction of a tooth causing little or no pain. I have more than once or twice seen a comparatively intelligent boy sit quietly in a chair while his toe-nail was removed, requiring no one to hold him, and uttering no exclamation, but looking on as if interested, and stating that the operation did not hurt him. A child who had severely burned his hand by holding it in a gas flame took the first opportunity after recovery to endeavour to renew an experience which to him did not appear painful."

As is well known, in lesions to the nerves, loss of motor and sensory power generally go together, though sometimes they occur separately. It has been noticed by military surgeons, who have an opportunity of observing those random vivisections of nerves which are occasionally made by the bullet or the sabre, that sometimes motion is destroyed without sensation, or sensation without motion. The remarkable manner in which the sensory functions of wounded nerves are restored before the motor power, has been explained by Dr. S. Weir Mitchell¹ "as being due to the constant automatic

¹ See Contributions relating to the Causation and Prevention of Disease,

exercise of the sense of touch, whereas the function of motion demands a distinct volition." This is perhaps the reason why a defective grasp is more common with idiots than a defective sense of touch. Where the grasp is firm and the fingers can be readily moved, yet the patient cannot put in a button nor hold a needle, we are inclined to put it down to deficient tactile sensibility ; but when the grasp and motion of the fingers are feeble and trembling, we attribute it rather to want of motor than of sensory power. Abnormal sensations, so common with lunatics, are not often met with amongst idiots. I had one instance where a strong healthy girl persisted for several days in the statement that there was something sticking in her throat, and I was obliged to give her chloroform in order to ascertain whether anything was really there. Nothing was found, but I told her that I had taken the thing away, when she seemed satisfied, and complained no more about it.

Seguin gives two cases where tactile sensibility was obtuse in every part of the body save the soles of the feet. Sometimes particular spots are noticed to be extremely sensitive. We have in the house an epileptic idiot, in whom there is little difficulty in ascertaining that sensibility is much less keen in the trunk and limbs than in the head. If pinched or pricked on any part below the neck, he shows very little uneasiness ; but if the same thing is done to the cheeks, or if the hair be pulled, he expresses pain in a lively manner. He uses his lips and tongue in feeling, instead of his fingers. When anything puts him about he almost immediately vomits.

Idiots of the lowest class show no desire for food, though they sometimes seem to swallow with a relish ; but with those who have any ideas, the sensation of hunger and thirst seems rarely wanting. There are cases where the

and to Camp Diseases, etc., edited by Austin Flint, M.D., New York, published for the U. S. Sanitary Commission 1867, chap. xii. p. 414.

desire for food is very keen, and difficult to satisfy ; and we had a girl—a congenital idiot—in the Institution, aged ten years, whose thirst was so inordinate that she would drink almost any kind of liquid in enormous quantities. She has been known to empty a ewer full of water in a short time. This abnormal thirst lasted for the five years she was in the house, and was noted on arrival. It is unaccompanied by diabetes.

Sight.

The visual apparatus of idiots is generally good. According to Guggenbühl,¹ this also holds true with the cretins, amongst which he laboured. I have not observed an unusual number of either short or long sighted cases in our Institution ; and I have never been able to satisfy myself of the existence of a single case of colour-blindness. We have three instances in the house of malformation of the iris giving an irregular form to the pupil, but, apparently, without injuriously affecting the sight. Pigmentary retinitis has been noticed by Liebreich in two cases of idiocy, and it is stated to be common with the children of consanguine marriages. This is worth inquiring into, but it is doubtful whether it is common with idiots, as their sight is generally good, and pigmentary retinitis at least injures the sense of vision. Blindness occasionally occurs in idiocy if congenital, the result of cerebral hæmorrhage ; if acquired, the result of scrofulous inflammation.

Hearing.

Deafness frequently occurs in families where some of the

¹ *Die Cretinen-Heil Anstalt Auf dem Abendberg*, von Dr. Guggenbühl, Bern und St. Gallen, 1853, p. 90. "Der beste Sinn ist fast immer das Auge."

The same statement is made in the *Rapport de la Commission de S. M. le Roi de Sardaigne, pour étudier le Crétinisme* ; Turin, Imprimerie Royale, 1848. Foderé (*Traité du Goitre et du Crétinisme*, Paris, an viii.) says, § lxiv., "Le seul sens de la vue paraît intact ; mais qu'importe s'ils voient, ils n'aperçoivent pas."

other members are idiots. Sometimes idiots are born deaf. We had an instance in the house of a boy who was almost totally deaf—the external auditory meatus of both ears ending in a blind pouch, about an inch from the outer opening. Loss of, or diminution of, the sense of hearing is often the result of hydrocephalus and scarlet fever, and sometimes of epilepsy, which are also causes of idiocy. Scrofulous otorrhoea is common with idiots, not unfrequently causing dulness of hearing from destruction of the membrane of the tympanum, but rarely entire loss of hearing.

Taste.

A large number of idiots are deficient in taste ; some of them seem to want the sense altogether ; at least, one may make bold to say that a boy who would eat black soap cannot have much of the sense which constituted the main enjoyment of Apicius. Idiots seldom have the same objections as other children to take medicines. They will chew pills in their mouths, in a manner which makes one sick to look at ; and I have seen two boys who positively seemed to enjoy turpentine, very likely because the strong, stinging taste aroused their dull gustatory nerves. It is only the more intelligent class of idiots who notice any difference in the flavour of articles of food. They generally eat what is put before them, but sometimes refuse to take particular articles. Some idiots cannot be kept from eating grass or offal, or even more disgusting substances. In about eighty cases which we carefully examined, taste was found to be very deficient in twenty-two. They swallowed, without any apparent uneasiness, tincture of ginger hot enough to be painful to an ordinary palate. Six more appeared to have the sense of taste deficient, though in a less degree ; and very few of them seemed to possess anything like a delicate palate. Esquirol mentioned

an idiot who had an exclusive taste for tobacco, and who would hold out, not his hand, but his arm for a piece. When it was put upon his arm he would first apply it to his nose, and then swallow it. He would lick his shirt or his chair if any grains of tobacco had lain upon them. Ferrus recorded an idiot who was fond of eating snuff. M. Bourneville¹ mentions one called Becco at the private Institution at Gentilly, who had a most insatiable voracity, and ate all kinds of husks and offal. His food was cut in pieces for him, but he made no use of his teeth, swallowing everything with the greatest rapidity. "About an hour after," writes M. Bourneville, "he might be seen in a pleased condition, his face radiant with joy, chewing the pieces of meat which he had swallowed, and which had come back from his stomach almost unchanged. Every day, at different times, the same thing went on. It was one of the best instances of rumination in man which could be seen."

Sense of Smell.

The boy who ate black soap and swallowed the hottest tincture of ginger without any remark, seemed also to want the sense of smell—at least, he did not seem to find the fumes of strong liquor ammoniæ in the least annoying. This was also the case with a girl, who does not appear to want the sense of taste. Both were congenital idiots, but were capable of expressing their feelings. It is almost impossible to say how far idiots may be wanting in the delicate perception of odours. The sense of smell is too feeble in the human species to arouse a sluggish apprehension. As a general rule, it may be said that idiots want the sense of smell much less often than the sense of taste. They are pleased with sweet odours, and dislike pungent ones. They rarely use the sense of smell

¹ *Mémoire sur la Condition de la Bouche chez les Idiots* : Paris, 1863.

to distinguish the quality of food. Dr. Rösch¹ says that the sense of smell is the weakest of all with idiots, and seems to fail entirely with many of them ; and cites two instances where the olfactory nerves were found to be small in idiots who died at the Mariaberg.

It is true, as he says, that they manifest little dislike to bad odours, but the nose soon becomes accustomed to bad smells, and idiots are generally too indolent to exert themselves to remove a temporary annoyance. Rousseau states his belief that the sense of smell appears later than all the others in children, but it seems to me that they feel smells, though they put themselves little about concerning them.

Mental Symptoms.

The study of the mental symptoms in idiocy is of the first importance. No amount of skill in the diagnosis of pathological conditions can dispense with the careful analysis of the existing mental powers. On the other hand, by ascertaining the amount of intelligence, we can form some notion as to the amount of the nervous or cerebral lesion. An experienced observer can generally, on a single examination, assisted by parents or friends, gain a pretty correct estimate of the amount of intelligence possessed by an idiot. It is more difficult to find out whether he is educable or not.

The distinction between idiocy and dementia, which occasionally have a superficial resemblance, has been already stated. In case any difficulty should remain in the reader's mind, the following passage from Dr. Abercrombie's well-known work on the Intellectual Powers ought to make the question as clear as mere words can do ; for in truth many such questions have been much confused by talking and

¹ Beobachtungen über den Cretinismus eine Zeitschrift herausgegeben von den Aerzten der Heil Anstalt Mariaberg, Tübingen, 1850, Erstes Heft, p. 13.

writing about them. "There has been considerable discussion respecting the distinction between insanity and idiocy. It has been said that the insane reason justly on false premises, and that idiots reason falsely on sound premises. This does not seem to be well founded. It would appear that a maniac may reason either upon false or true premises ; but that, in either case, his reason is influenced by distorted views of the relations of things. The idiot, on the other hand, does not reason at all ; that is, though he may remember the facts, he does not trace their relations. Idiocy appears to consist, in a greater or less degree, in a simply impaired or weakened state of the mental powers ; but this is not insanity. On the contrary, we have seen that, in the insane, certain mental powers may be in the highest state of activity—the memory recalling things long gone by ; the imagination forming brilliant associations ; every faculty in the highest activity, except the power of tracing correct relations. I have already referred to a gentleman mentioned by Pinel, who possessed during the paroxysm a brilliancy of conception and a readiness of memory which were not natural to him. Another mentioned by the same writer, who was infatuated with the chimera of perpetual motion, constructed pieces of mechanism, which were the result of the most profound combinations, at the time when he was so mad that he believed his head to have been changed. A female, mentioned I believe by Rush, sang with great beauty and sweetness, which she would not do when she was sane ; and a musician played, when insane, much better than when he was well."

Perhaps the best psychical classification of idiocy is that of Esquirol, in which he takes speech as the criterion. In the first degree of imbecility, speech is free and easy ; in the second degree it is less easy, and the vocabulary smaller. In the first degree of idiocy proper, the idiot can only use short words and phrases ; idiots of the second grade only utter

monosyllables or cries ; in the third grade, they neither use speech, nor phrases, nor words, nor monosyllables. It will be here seen that Esquirol uses the terms idiocy proper and imbecility as primary divisions. Many English writers use the word idiocy to include all states of deficient intellect in childhood, keeping the word imbecility to denote the higher forms. We might divide idiots, from their mental manifestations, into—

I. Those who can receive sensory impressions, or *παράσματα* ; who have sensations which they do not reduce to perceptions. They possess only the passive intellect (*νοῦς παθητικός*) of Aristotle and his commentator, Averroes.¹

II. Those who have also the power to compare, reason upon, and draw general conclusions from the *παράσματα* ; who have the active intellect (*ποιητικός*).

III. In the third grade they can form abstract ideas. This class includes all higher degrees of idiocy, and would probably require further subdivision.

For the purpose of education we divide the pupils of the Larbert Institution into five grades :—

I. Comprising those who can neither speak nor understand speech.

II. Those who can understand a few easy words.

III. Those who can speak, and can be taught to work.

IV. Those who can be taught to read and write.

V. Those who can read books for themselves. I find that most cases can be put under one or other of these classes. Where there is a difficulty it is generally with the third class, for some can speak who cannot be taught to work, though very few.

Apart from abstractions, a ready standard to measure the capacities of idiots is got by comparing them with those of

¹ *Averroës et Averroïsme*, par Ernest Renan ; Paris, 1861 ; § v. p. 123. *Aristot. de Anima*, l. iii. cap. v.

ordinary children at a given age. We can say that an idiot has the capacity of a newly-born child. It is scarcely necessary to go further back than this ; but, as you all know, there are some creatures for which we must go back to the foetal condition, acephalous monsters, in whom the medulla oblongata is present, and who can thus breathe, suck, and even be made to cry. These creatures generally die, in the first week, of convulsions. But, to go on, we may say the idiot has the intelligence of a child of so many months, or so many years. Idiocy, in its mental manifestations at least, may be viewed as a fixed infantile condition. Idiots remain all their lives children in intellect ; often so in their feelings and desires.

Of course there is always this difference between an idiot and another child, that though at a given time the potential intellect of the one is no greater than that of the other, the idiot has the benefit of a larger experience. Nevertheless, we must have some scale of comparison, and if we reject this one we are not likely to have any other.

The human body, it ought to be remembered, is an extremely complex machine. At birth the mind of the new being is put in possession of five senses, as means of ascertaining the changes of certain forces or certain properties in the material world ; and 265 pairs of muscles, which, made to contract by an effort of the will, enable the new being to execute a variety of motions. Not only are the senses at birth not arrived at perfection, but a long process of spontaneous education is needed, and a number of inferences are made and tested, ere information derived through sensation is of practical value. Sir W. Wilde has some remarks on the order in which the senses come into action,¹ which are worthy of attention. "Taste, with some touch, and a certain

¹ See *Aural Surgery and Diseases of the Ear*, by William R. Wilde, F.R.C.S. London, 1853, p. 460.

amount of muscular motion, are put forth in the act of sucking, immediately after birth, in all young mammary animals.

"The earliest directed muscular action of the infant is that of the hand pressed against the nurse's breast, but the period at which this occurs is very variable. Vision seems to be perfect at birth, and even before a child has sucked it is attracted by light, and evidently turns to the blaze of a fire or candle. An intelligent child will recognise its nurse in from six weeks to two months,¹ after which it will begin to smile at those it is accustomed to. During the third month children appear to be conscious of sounds; and in the fourth exhibit an appreciation of particular sounds, such as chirping, whistling, etc.; after that period they begin to recognise the voice; and from the fourth to the sixth month is, perhaps, the earliest period when an opinion can be formed as regards the hearing of an infant; but the idea of deafness never having presented itself, it is seldom until after the twelfth month (unless there are other mutes in the family) that the friends or attendants begin to perceive that the child does not hear. After the fifth or sixth month infants recognise particular sounds, and distinguish the voice of individuals. This latter faculty is in some cases dependent upon the development of the teeth, which, to a certain extent, influences the sense of hearing, as already stated. Anatomists say that at, and even for some time after birth, the tympanum and the meatus are filled with mucus: the former cavity is then so narrow that the quantity of fluid it contains must be

¹ Adam Smith says it will do so in a month. See a passage quoted from him in Sir William Hamilton's *Lectures on Metaphysics*, Edinburgh, 1871, vol. ii. (Lecture xxviii. p. 184.) I have asked the opinion of several intelligent mothers upon these and other points, who all would place the evolution of the senses earlier than Sir W. Wilde. My own experiments induce me to agree with them as far as hearing goes. Darwin observed that his infants started at sudden sounds when under a fortnight old. See his book on *Expression on Man and Animals*, p. 39. However, it is admitted on all hands, that some children are earlier, some more backward, than others.

very small, and in the latter it is more likely to be some of the liquor amnii which remains in the external auditory canal than mucus.

“The next development is a combination of tact, touch, and directed muscular motion, as shown first in grasping objects placed within reach of the hand, and then directing them to the mouth, which will occur very early in life. There is no sense so variable in its development as speech. Some children begin to speak at from twelve to eighteen months, others not till after the second year ; some pronounce distinctly at two years, and others not until nine or ten. Family peculiarity seems to influence the development of speech, and also congenital malformation of the tongue and mouth.

In idiots this evolution of the senses is sometimes much slower. Some can scarcely be brought to suck at all, though others do so without difficulty. The child does not notice things, smile, or stretch out its hands to grasp them like other infants. Idiots of the lowest class seem to have nothing more than the passive intellect : the optical apparatus of the eye are perfect, but if the creature apprehends the sensation of light, it does not use it as a perception, or perhaps it only notices a sudden flash of sunshine, or the difference between day and night, or perhaps objects swim before his eyes like the waves in the sea, so confused and unnoticed that he can scarcely be said to see at all. Vibrations enter the ear and set in motion its complicated machinery, but the idiot heeds it no more than the miller does the sound of his mill. It is sometimes very difficult to find out whether an idiot is not actually deaf, who nevertheless can hear perfectly well if the attention be caught. Sometimes he will only show that he hears loud abrupt noises, or certain musical notes, or particular sounds, such as the jingling of keys or the deep tone of gongs.

Itard remarked of the wild boy of Aveyron, who turned out to be an idiot ; "when, without his knowing of it, I plucked, in the most cautious and gentle manner, a chestnut or walnut, —when I only touched the key of the door which held him captive, he never failed instantly to turn back, and run towards the place whence the noise arose. If the hearing did not express the same susceptibility for the sounds of the human voice, for the explosion even of fire-arms, it may be accounted for from that organ being little sensible and attentive to any impressions except those to which it had been long and exclusively accustomed."

As regards the perception of sensation, the idiot may be somewhat in the condition of a man half asleep, or heavy with extreme fatigue, or on the verge of fainting, or deeply intoxicated. The sluggishness of idiocy may be occasionally owing to all efforts of attention being painful, so that impressions are allowed to wander through the mind without any attempt being made to fix or examine them.

One occasionally sees solitary idiots who have been kept alive for many years, and would die of starvation unless food were put into their mouths. There are idiots who may be said to have grown up in bed, who have never walked nor left the supine position, and cannot grasp nor execute any voluntary motion save opening and shutting the mouth. I have seen another idiot, seven years old, who only swallowed food when placed on the back of the tongue within reach of the reflex actions of the pharynx. He was kept tied in a chair ; for, though unable to design any motion, he would sometimes make involuntary bounds, which would throw him on the floor.

There are cases in which the want of power over the muscles observed in some idiots has been regarded as owing to the absence of what metaphysicians call the conative faculty or will ; but it is not clear to me if those who hold

to this explanation distinguish nicely enough between the different mental processes required for the accomplishment of a voluntary act. We must first have knowledge, the knowledge of the object desired, and then the desire put forth in overt exertion to obtain a known object, or to change one state for another, which is quite different from the pain and pleasure obtained, when by the exertion of the will the object is gained. The quiescence of idiocy may be owing to the want of knowledge requisite to form a definite desire, to the callousness of feeling through which pleasurable emotions cannot be reached, as well as to the want of will or desire to obtain by exertion a known object.

In the Eighth Annual Report of the Pennsylvania Training School for Feeble-minded Children, Dr. Parrish describes this want of volition observed by him in idiots, in terms which seem unequivocal. "A boy," he says, "for example, who is hungry or cold, whose instincts prompt him to seek food or fire, will do neither voluntarily, for want of the power to determine to do it; but will suffer for hours together the conflict between his natural cravings and his want of will to indulge them; but, when once moved from his seat by the touch of another, will seek, find, and appropriate what he needs. He will not play in the gymnasium, even when his muscles quiver with the native impulse to engage in sport, *for want of power to start*, but when once moved and directed is cheerful and happy. The want of volition is the ever-present barrier to his improvement." Sometimes the defective power, wherever it lies, can be brought into exercise by careful training. The teacher grasps the arms of the pupil, making him perform passive exercises, until in time he is led to exert himself to continue them. Here it is either the passive movement of the limbs, which, by exciting a pleasurable sensation, puts into the mind of the idiot the desire of reproducing it by muscular efforts, or the enforced exercise

which calls into activity the dormant powers of the will. In any case the usual order is reversed, in accordance with a principle indicated by Laplace,¹ in his *Essay on Probabilities*:—"The principle of the connection of all the things which in an internal organ have had an existence either simultaneous or in regular succession, a connection which by the return of one thing recalls the others. To this fruitful principle are related a large number of phenomena as well as the following principle. *If one frequently performs the actions which result from a particular modification of the internal organ, their reaction upon that organ may not only increase that modification, but sometimes give birth to it.* Thus, the movement of the hand which holds a long chain suspended is propagated through the whole length of the chain to its lower end. But if, the chain being at rest, one puts the lower end in motion, the vibration mounts upwards to the hand, making it move in its turn. These reciprocal movements become easy, and, as it were, natural by frequent repetition. This facility that the internal organ contracts is another principle of intellectual physiology."

Instances of astonishing strength of the will are not uncommon. A girl of twelve years of age wishing to attain any object generally exerts her whole muscular strength, which for her age is very great. If denied a thing she wants within her sight, she will rush at it with the most extreme eagerness in her countenance; the tears start to her eyes; she struggles, pulls, and kicks, but without ever saying a word, for she is mute. She is very fond of pencils, and an attempt being made to deprive her of one is resisted with her usual determination. Once, when I had occasion to give her chloroform, on her becoming unconscious I took away her pencil, which she had still clasped in her hand; but she

¹ *Essai Philosophique sur les Probabilités*, par M. le Comte Laplace. Paris, 1816, p. 227.

noticed the want of it immediately on returning to consciousness, and looked round about her in search of it, with a distressed and anxious expression.

In normal infancy the use of the muscular apparatus is only gained in a slow and tentative manner. The child learns by degrees to grasp, and that if it relaxes its grasp for a moment the object will escape it. It learns to raise its hand to its mouth, to push, to creep, and to walk. This requires mental effort and attention, as much as learning to ride, to skate, or to drive a velocipede; and as there are some people too stupid to learn to do these well, there are beings too stupid to learn how to use the machinery of the body properly. In general idiots or imbecile children are awkward in their motions and slow at learning to walk. Out of 111 cases of which I have the report, the average time before the child began to walk was $2\frac{1}{2}$ years. In making up this average, all cases where idiocy had commenced after the child had learned to walk have of course been omitted. Only five were stated to have begun to walk at one year. No doubt, the cause of this lateness in learning to walk is in some cases owing to weakness, in others to nervous disease; but there are still cases where the child always appeared strong and healthy, and the deficiency is really in the power of mental guidance. Idiots in general have a bad balance; and if this be tested by causing them to walk along a plank, it will be found that it is the most intelligent who succeed best. In the lower grades of idiocy the grasp is often very deficient.

The following passage from Carpenter's *Physiology*¹ is no more than the statement of a notion very widely diffused. "Those unfortunate beings, in whom the cerebrum is but little developed, are guided almost solely by their instinctive tendencies, which frequently manifest themselves with a de-

¹ *Principles of Human Physiology*, fourth edition, p. 773.

gree of strength that would not have been supposed to exist ; and occasionally new instincts present themselves, of which the human being is ordinarily regarded as destitute." As an instance of this he gives : " A perfectly idiotic girl, in Paris, having been seduced by some miscreant, was delivered of a child without assistance ; and it was found that she had gnawed the umbilical cord in two, in the same manner as is practised by the lower animals. It is scarcely to be supposed that she had any idea of the object of this separation." I am not aware of any facts which confirm this statement. My impression is that instinct is often weaker in idiots than in ordinary children. The action of sucking, for example, is generally regarded as instinctive ; but it frequently happens that born idiots cannot suck at all, or require to be fed artificially for some time ere they learn to suck ; in fact there is reason to believe that the spinal cord, the seat of such reflex actions, is often diseased in idiocy as well as the brain.

As for the story of the idiotic girl in Paris, I know not on what ultimate authority it rests. I have witnessed the birth of a child from an idiotic woman in a lunatic asylum, and can testify that she showed no desire to gnaw the umbilical cord. She seemed quite unconscious of anything but the pain of parturition. The labour pains being feeble, she had in the end to be delivered with the forceps. Her breasts were not much enlarged, and the maternal feelings seemed to be very slightly if at all excited. The infant did not appear to me to be an idiot.

It is common enough to say that an idiot has less intelligence than some of the lower animals. Nevertheless, when we come to compare the intelligence of the one with that of the other, we soon become aware of the difficulty. One reason undoubtedly is, that whether an animal may be said to act by instinct or by intelligence, all his mental operations have one turn—providing for himself, for his kind, or performing

some action to which he has been trained by long habit. Rousseau observes all the lower animals have exactly the faculties necessary to preserve them ; man alone has superfluous ones ; and this is generally true, though it does not hold good in all cases. An animal deficient in the faculties of its kind must perish. In fact there are idiotic animals—idiotic pups for example, as dog-breeders know, which are of course destroyed whenever their deficiency is recognised. In idiots some of the superfluous faculties remain weakened like the rest, but still there, to distinguish the intelligence as of human type. An idiot who can be taught to read may be utterly unable to preserve or defend himself.

The word instinct is often used as if we could create a difference between our own mental operations and those of brutes, merely by giving a different name to the same thing. There is no ground for reasonable doubt that the higher class of animals, such as the elephant, the dog, and the monkey, have mental faculties differing in degree, and to some extent in kind, but still essentially of the same class as the human intellect. They not only observe objects and note their changes, which implies apprehension, memory, and comparison ; but they can carry on simple processes of reasoning, can understand and occasionally try to communicate information. We have no proof that they understand the relations of numbers, or can form abstract ideas. Every one has heard a good many anecdotes about clever dogs and sagacious elephants ; and the intelligence of the anthropoid ape is all the more remarkable that the structure of his body and his tendency to imitation make him the caricature of man. According to Du Chaillu, the chimpanzee constructs a species of parasol to shelter itself from the rain, which it binds firmly to a branch of a tree. There are often two, one for the male and one for the female. Ourangs use sticks to strike other animals, and are given to throwing stones. Bears are said

now and then to try pushing over rocks on their enemies. Most of the larger apes can be taught to use the knife and fork. Some have been taught to light a fire and make coffee. M. Dureau¹ had the pleasure of knowing an ape who conducted himself at table as well as an ordinary Frenchman. He was invited to dine by a rich bourgeois, and M. Dureau assures us, 'sa tenue de rigueur n'eût rien laissé à désirer.' I have been very much struck with what is told of the wolverine or carcajou in an amusing book of travels.² "During the winter months," we are told, "this animal obtains a livelihood by availing himself of the labours of the trapper, and such serious injury does he inflict that he has received from the Indians the name of Kekw-aharkess, or the 'Evil One.' With untiring perseverance he hunts day and night for the trail of man, and when it is found, follows it unerringly. When he comes to a lake, where the track is generally drifted over, he continues his untiring gallop round its borders, to discover the point at which it again enters the woods, and again follows it, until he arrives at one of the wooden traps. Avoiding the door, he speedily tears open an entrance at the back, and seizes the bait with impunity; or if the trap contains an animal, he drags out, and, with wanton malevolence, mauls it and hides it at some hole in the underwood, or at the top of some lofty pine. Occasionally, when hard pressed by hunger, he devours it. In this manner he demolishes the whole series of traps, and when once a wolverine has established himself on a trapping walk, the hunter's only chance for success is to change ground and build a fresh lot of traps, trusting to secure a few furs before the new path is found by his industrious enemy. Strange stories are related by the trappers of the extraordinary

¹ Most of these statements are taken from the *Bulletins de la Société d'Anthropologie*, Tomes, iv. and v.

² *The North-West Passage by Land*, by Viscount Milton and Dr. Cheadle; London, 1865; pp. 102-105.

cunning of this animal, which they believe to possess a wisdom almost human."

Even supposing these stories to be sometimes exaggerated, it is clear that the wolverine possesses reasoning faculties much greater than what we are generally willing to allow to the lower animals.

Most idiots that pay any attention to sound have got some ear for music. Many can hum tunes correctly who cannot speak a word and cannot even understand speech. Sometimes we have pupils who use the voice to imitate tunes, though they cannot be induced to use the voice to repeat words in order to communicate their feelings, desires, or thoughts, nor even to repeat words like a parrot. Such creatures sometimes show an extraordinary eagerness to listen to music. Some who can only repeat two or three words will employ them in various modulations to sing or chant a tune. In general idiots prefer easy music, but then their ear has seldom received much culture. Some sing very correctly, and have sweet voices. On the whole, it appears that in the mere taste for music idiots are little behind ordinary children. This is a subject of frequent remark amongst the parents of such children, who are apt to ground hopes upon the special gift, which are seldom destined to be realised.

If imbecile children are slow at learning to walk, they are still slower at learning to speak. The lower classes of idiots never learn to speak at all. Out of 103 cases of which I have notes, 36 were found mute on entry, and 67 could speak more or less. The average time at which they began to speak was four years and three months. Only 4 were noted as having begun to speak at one year. Sometimes they began to speak as late as ten or twelve. All these children could hear. It may be said of the greater number that the reason why they could not speak was that they had no ideas to express. Speech is an endowment which demands the integrity of so many powers of

the human mind that it is not surprising it should often fall into disuse in insanity.

In idiocy, as we have already observed, the gift of speech bears a pretty well-marked relation to the number and complexity of ideas; but there is a certain class who may be styled idiotic aphasiacs who remain obstinately mute, though it is clear they have more intelligence than other children who talk volubly—sometimes, indeed, they have so much intelligence that people doubt whether they are imbecile at all. I have seen three or four such cases. They all appeared to me to be imbecile children. If they were not so they could be educated at a deaf and dumb school to express themselves by signs and writing, and might be expected to surpass deaf mutes, having the great advantage of being able to hear and understand speech. In fact I have seen some of these mutes in schools for the deaf and dumb, but none of them making much progress. Sir William Wilde¹ has given seven instances, selected from the Irish census of 1851, where there was mutism without deafness or imbecility. In some of these cases the informants or reporters hesitated to assert decidedly that there was no deficiency of intellect; but in none was the intelligence so low as in any degree to account for the mutism. In most cases there was more or less want of power over the muscles of the tongue. Here is an example. Dr. Walsh, of Ballinakill, has afforded the following return upon the case of a man aged twenty:—"He is completely dumb, seemingly not capable of giving expression to even inarticulate sounds; his hearing is acute and correct, and he is in no way guided by observing the lips of the speaker; he is an intelligent, well-formed agricultural labourer; his tongue appears shorter than natural, and he cannot protrude it beyond the lower lip, but can move it from side to side with freedom; he has no cerebral disease."

¹ *Aural Surgery and Diseases of the Ear*, by William R. Wilde, F.R.C.S.I., &c., London, 1853; pp. 465-7.

Sir W. Wilde adds :—" In many instances of defective articulation as well as severe stuttering, and of partial mutism—a disease not yet well described by authors—there is a peculiar narrowness, and an unnatural height of the palate immediately behind the upper incisor teeth."

I know an instance of a boy who, although he cannot speak ordinary words yet, has invented a few of his own to which he attaches fixed meanings. Thus, he says "weep-oo" for night and black, "Kuss-kuss" for his brother John, "hurly" for wood or for a carpenter; he calls another brother "Gildy-googli," and "tutteras" soldiers; "hubba" big or large, "goodies" old women, "gildy-goldies" young women. Some words are from the sound made by the objects, as "teuch-teuch" a railway train, "hee-ho" a horse, and "ba" a sheep. The only words he uses in their proper sense are yes and no. Idiots who are able to speak generally confine their remarks to the expression of simple wants and feelings. They prefer short words, and truncate the long ones. If asked to repeat several words, they often repeat only the last one, or even the last syllable.

The easiest abstract ideas are those where sensible qualities of matter are separated in the mind from the concrete objects to which they are attached, as in the notion of hardness or resistance, which is combined in the mind with that of shape or figure and colour, which also comprises two qualities, for the idea of colour cannot be separated in the human mind from that of extension. Sometimes they can be taught to distinguish forms before colours, sometimes the reverse. Many idiots can be taught to distinguish colours who cannot be taught to name them. They can learn to thread beads of different hues without making any mistakes in the selection. In naming them, black and white are generally first learned, then red and yellow. According to Sir John Lubbock, some savage tribes who have names for different colours have no word for colour in general.

The idea of number is taken up with great difficulty, number being a purer mental abstraction than colour or form. The deficiency of idiots in this respect is certainly very striking. There is a boy at Larbert, aged ten years, who knows all the colours, and is learning the alphabet. He forms an estimate of the character of those around him, and has some sense of moral relations. He talks volubly on childish subjects, but is so deficient in arithmetical power that a year ago he seemed to have no conception even of a unit. He would say that he had three heads, touching his head several times with his finger. This was not because he wanted the word, for he could repeat the names of numbers, as far as twelve at least, without any difficulty. This year, after much trouble, he seems to have mastered the idea of two, and can count cautiously up to three. When he gets to four he is extremely perplexed. If one holds out five fingers to him, he will count "one, one, two, three, four, there is four," or at another attempt, "one, two, three, four, five, six, seven," and the sum total is declared to be eight. This boy is not without imagination. He is fond of arranging pebbles in a line to represent a railway-train, showing he can conceive of symbols. I never met with a single case of an imbecile who was expert in figures. Such cases occur, but they are very rare; even those who can read tolerably are deficient in arithmetic. To teach them to count at all, even on the abacus or bead-frame, is a matter of great difficulty. With an amount of trouble which would be enough to form a senior wrangler out of an under graduate, they may be brought to learn a little addition, subtraction, and multiplication, but very few can be taught division. When one sees the amazing results which can be worked out by turning the handle of a calculating machine, long columns of figures added, subtracted, multiplied, and divided with unfailing accuracy, it is difficult to understand how a being who shares an intelligence, small indeed, but

essentially human, should take years to learn to add together a few figures, and even after learning them should be slow and unwilling to apply his knowledge. Dr Abercrombie,¹ who had detected this weak point in imbeciles, gives the following example, in which it was used for a test for imbecility :—

“A gentleman of considerable property having died intestate, his heir-at-law was a younger brother, who had always been reckoned very deficient in intellect, and consequently his relatives now brought an action into the Court of Session for the purpose of proving him incompetent, and obtaining the authority of the court for putting him under trustees. In the investigation of this case various respectable persons deposed that they had long known the individual, and considered him as decidedly imbecile in his understanding and incapable of managing his affairs. On the other hand, most respectable evidence was produced that he had been, when at school, an excellent scholar in the languages, and had repeatedly acted as a private tutor to boys, that he was remarkably attentive to his own interest and very strict in making a bargain, that he had been proposed as a candidate for holy orders, and, on his first examination in the languages, had acquitted himself well ; but that, in the subsequent trials, in which the candidate is required to deliver a discourse, he had been found incompetent. The Court of Session, after long pleading, decided that this individual was incapable of managing his affairs. The case was then appealed to the House of Lords, where, after further protracted proceedings, this decision was affirmed. I was well acquainted with this person, and was decidedly of opinion that he was weak in his intellect. At my suggestion the following experiments were made in the course of the investigation :—A small sum of money was given him, with directions to spend it, and present an account of his disbursement, with the addition of the

¹ *Intellectual Powers*, pp. 354-356.

various articles. He soon got rid of the money, but was found totally incapable of this very simple piece of arithmetic, though the sum did not exceed a few shillings. This individual then, it would appear, possessed the simple state of memory which enabled him to acquire languages, but was deficient in the capacity of combining, reflecting, or comparing. His total inability to perform the most simple process of arithmetic was a prominent characteristic in the case, analogous to what I have already stated in regard to the cretins. In doubtful cases of the kind I think this might be employed as a negative test with advantage, for it probably will not be denied that a person who is incapable of such a process is incompetent to manage his affairs."

Some savage tribes are said to have very little idea of number, at least they have no words for large numbers. Mr. E. B. Tylor says that there are some tribes which have no notion of numbers beyond one, two ; and use three indiscriminately for three or for a great many. Some can reach five, others can get beyond twenty, and yet cannot indicate numbers by words. They have the conception of number, but cannot describe it, except by such processes as holding up fingers. The gipsies in England have no Romany word above six, so they count by tens and twenties.

Imbeciles who learn number often assist themselves by counting on their fingers. This is evidently the origin of the decimal method of counting, as counting by scores arose from counting both the fingers and toes.

If you ask a Greenlander the number of people about, and he wishes to say fifty-three, he will say the third man on the third foot, *i.e.*, he counts the fingers and toes on three men till he comes to the number three on the first foot of the third man.

Homer¹ always gives arithmetical relations in an extremely simple, even awkward, manner, but this may have been owing

¹ See *Odyssey*, ix. l. 60 and 160, and *Iliad*, ii. l. 123.

to the poetical turn of expression rather than to the rudeness of the heroic age.

There is something in the nature of our conceptions of numbers, and the manner in which in arithmetical calculations we can shift from ideas to words, and from words back again to ideas, which arrested the wonder of the first Greek philosophers. Pythagoras speaks of numbers as if outward objects were copied from them. He said "the wisest of all things is number, and next to number that which gives names."

Æschylus¹ makes Prometheus say that he discovered to men numbers, the chief of wise devices—

*Καὶ μὴν ἀριθμὸν ἔσχον σοφισμάτων
'Εξηύρων αὐτοῖς, γραμμῶν τε συνθέσεις,
Μνήμην θ' ἀπάντων μουσομήτορ ἐργάτω.*

Dr. Wilbur² gives a curious instance of an idiot, ten years old, who could obey a few simple commands, and had learned the names of a few familiar objects. He was being taught the first ideas of number. "Our custom," says Dr. Wilbur, "is to begin this before the names of the numbers are imparted. He was taught to string black and white beads alternately, then in pairs, and so on up to fours and fives, where the exercise is dropped, to be resumed again when the names of numbers have been learned. He, however, had fallen into the hands of a new teacher, who, not understanding the matter, had continued the exercise. I found him one day, to my surprise, stringing thirty-five black and white beads alternately. I found, on still further examination, that up to this point it was only necessary to indicate any number, by first placing them on the string, and then he would continue to alternate the required number without mistake.

"My first thought was, in the absence of the power of counting, he was enabled to do this by measuring on his

¹ Prometheus, *Desmotēs*, l. 459.

² I take this from a pamphlet on Aphasia, by Dr. H. B. Wilbur, Superintendent State Asylum for Idiots, Syracuse, N. Y., p. 29.

string the alternate distances accurately. I found, however, that owing to a marked difference in the size of the beads, these did not correspond at all. I have no explanation to offer for this mental operation, but it seems to me that number was comprehended to the extent mentioned, without language."

Sometimes the teacher in an idiot school finds that what he has taught his pupil is totally forgotten—fading gradually or suddenly away out of the mind. This is most common in epileptic idiocy after renewed fits; but occasionally it is noticed in other forms of idiocy, without any accompanying symptom. It may thus happen that the same lesson has to be taught three or four times over.

Our description of the mental condition of idiots is but a series of negative definitions, and it would be both difficult and tiresome to pursue the subject much further in reference to the capacities of imbecile children who can learn to read and write, and understand some of the relations of number. These unfortunate creatures have a complete, though a weak, outline of all the human faculties. In their minds every species of mental operation is performed, though on a small and feeble scale, just as the child has all the muscles and nerves of the athlete. They fail in estimating the probabilities of daily life; they fail egregiously in self-knowledge. Fortunately for them they have seldom any idea of the gifts which nature has denied them. An imbecile boy would get on the back of a horse which would hurl him to the ground in a moment; another, who can scarcely read, will ask to be educated for a minister. One of our boys, who can read tolerably, go messages, make brushes, and other work, once told me that he would like if I could get him to be either a clerk in the telegraph office, or a railway signaller. This natural feature in the character of idiots has been finely touched by Madame de Gasparin in her pathetic story, *A Poor Boy*. "However badly he might succeed, however little he might

please others, he was no less in his own estimation—always the right man in the right place. It is true that when he took up a mug he might often chance to break it ; if he moved a chair, it was a thousand to one but he let it fall ; if he lighted the fire, he would be sure to blow the cinders into the porridge-pot ; and when he tried to feed the cow he would infallibly have put out her eye with his fork, had not the worthy animal, familiar with his ways from childhood, invariably turned away beforehand. Yet nothing daunted or dismayed him.”

Imbeciles are generally credulous, and often unsettled in purpose ; have got little capacity for any abstract line of thought, and could not follow a complex chain of reasoning ; but I do not know of any power which existed in the mind of Shakspeare or Napoleon of which they are totally destitute. They may have a poor judgment, a weak memory, a feeble power of comparison, a beggarly imagination, a fitful attention ; but they do possess judgment, memory, comparison, imagination, and attention, in varying, though in meagre proportions ; and all these can be educated and increased by exercise.

Often after having accumulated a considerable store of acquired knowledge, the original childishness remains, sometimes brought into ludicrous relief by the increased power of display given by education.

I have seen individuals who had sufficient mental power to pass college examinations, take degrees, and even gain prizes, who were so manifestly unfit to conduct themselves in the ordinary affairs of life, that they were a laughing-stock to the most ignorant people around them. Most of the imbeciles, described by Trélat in his striking book, *La Folie Lucide*, are simple-minded people, often with a tinge of insanity. Imbecile girls not unfrequently find husbands in France, where the marriages are arranged by the parents, and a dowry will make almost any young woman pass muster in

the matrimonial market. I knew of an instance of the kind myself when living at Avignon. Trèlat portrays, in an eloquent and touching manner, the misery of such connections, which often hand down the curse of imbecility or insanity to another generation. Dickens has, in *David Copperfield* given a beautiful picture of an imbecile girl, whose tender and loving nature gained the heart of an inexperienced and imaginative young man. The imbeciles in Dickens' stories are obviously the result of real studies from nature; the pictures of Barnaby Rudge, Mr. Dick, Miss Podsnap, and Maggie in *Little Dorrit*, if not all quite true to nature, are evidently done by an artist who has studied the class. In most other novelists the idiot seems to play the part of the jester in the middle ages, saying droll things, and repeating scraps of poetry. There are some idiots who never cry or shed tears, but very few with any glimmering of sense who do not laugh. They often appreciate humour of a broad character, and enjoy a joke when they see it, though they very seldom originate one. Their naiveté is sometimes very amusing. In an institution like ours there are always funny anecdotes, though it is not advisable to repeat them beyond the gates, and it is very needful to take care that the pupils are not made game of.

B. D. spoke in a very stolid manner, never trying to be humorous, but almost everything he said had something droll in it. Once when he was in the hospital, I said to the sick nurse, "Give him a pill and a half." He said: "Oh, just mak it twae and a half, Doctor." Another time he called to the nurse, "Oh! Mary, give me some water to wash my mouth, and I'll give you it back when I am done with it." Once when walking out with the teacher and the other boys, they came behind a very stout man, when Sandy, looking at his broad back, cried out in a very audible voice, "Is that man square, or is he oblong?" at which the man turned round and looked at him in no amiable manner. This was the

result of the figure lesson. He used to say "Alexander is my right name ; Sandy is my left." He was much given to ask people to write down his name on a bit of paper "in case he should forget it." If they obliged him he would make them add his father and mother's name, and so on. He was somewhat troublesome and aggressive, but the irresistible drollery of his remarks kept everybody in good humour. Sometimes the literal manner in which directions are interpreted by the simple-minded leads to whimsical results. An imbecile young man once called at a friend's house on a message. He stayed about four hours, walking about the room the whole time. When asked why he did so, he said, "Thomas (his brother) told him not to sit down," meaning of course not to stay long. On one occasion a boy asked me when he would get out of the hospital. I said, "When the sore in his leg was filled up." The next day he had the ulcer filled up with bread-paste, and asked to be let out, for it was now filled up. He was anxious to get some more wood to cleave down for firewood, but I told him he must wait till what was already cleft was burned, on which he gathered all the wood into a heap, and was going to set it on fire in order to have it burned.

Once when some people were talking amongst themselves about a girl's grandmother, she cried out, "I am sure I do not know whether my grandmother had any grandchildren or not." An imbecile boy from the north had still something of the shrewdness and caution of "canny Aberdeen." I once said to him, "Jamie, why do you not offer me a bit of your cake?" "Because you would tak (take) it," was the laconic answer.

It has been often observed, and I have witnessed it myself, that lunatics on the approach of death sometimes regain the even balance of their minds, as Blanche of Devon said—

"This hour of death has given me more
Of reason's power than years before ;

For as these ebbing veins decay,
My frenzied visions fade away."

It occasionally happens that idiots under great excitement use words, or express sentiments which nobody ever heard them say before. M. Nièpce, in a letter to the Academy of Sciences,¹ gave an account of a cretin who lived near the valley of the Isère. He was goitrous and scrofulous, did not walk till four years of age, and only spoke a few words, which he pronounced imperfectly. He was very apathetic, but sometimes showed a little liking for his mother. He was seized with hydrophobia, when he spoke with much greater facility than any one believed that he could do before the doctor and the apothecary, talked with great affection of his friends, and entreated them not to leave him alone. The day after he told them to call the Curé of the parish, and regretted with tears that he had never been able to learn the catechism. He died after four days' illness.

We meet with idiots and imbeciles of every kind of temper and disposition. Most of them are merry and good-humoured, completely free from care, and, if well treated, lead an easy and happy life. Some, however, are gloomy and irritable, though their resentment is little to be dreaded. We now and then hear of dreadful crimes committed by idiots ; but this is generally because they have received no training, and have been exasperated by ill-usage. In their mental and moral qualities they resemble children more than lunatics, and, no doubt, children would do serious mischief if they had the strength of grown-up people, as idiots sometimes have, and would come to do serious crimes if their education were totally neglected, as is so often the case with idiots. In general, puberty is late with idiots ; in most cases its manifestations are feeble ; in many cases it does not appear at all. But when it does come, it excites in the minds of idiots, especially when they are healthy and vigorous, desires and

¹ *Comptes Rendus*, 1853, p. 615.

feelings unknown to children. Its arrival demands increased care, especially with females.

In the Report of the Commissioners in Idiocy to the General Assembly of Connecticut,¹ we are told that—

“In a neighbouring State, some years since, an idiot girl, being left alone with an infant, killed it by striking it on the head with a flat iron. Since that time that girl has had the advantage of four years’ instruction in an asylum for idiots. She is now nearly sixteen years of age, and a more gentle, kind-hearted creature does not exist. She has learned the history of the meek and suffering Jesus, and she seeks to imitate His example.

“In our own State, a vicious idiot, some years ago, killed a man who was working with him, by striking him on the head with a shovel. Another was guilty of a very heinous crime, the result of his ungoverned lust. Another still, under the influence of experienced and daring villains, aided in a scheme of robbery and murder. These poor imbeciles were unconscious of guilt in the commission of these crimes, but society was none the less the sufferer, and life and person and property were rendered insecure, because these poor outcasts had not been instructed and controlled in their youth.”

It is a common observation that many of the criminals in our jails belong to the imbecile class, their natural stupidity and insensibility being all the more confirmed that all their training and habits have been towards crime.

Idiots and imbeciles seem to be much more expert at taking up moral relations than one would suppose from their other deficiencies. They attach praise and blame to particular people and particular actions. They are accessible to pity, and still more so to affection. The better classes of imbeciles can often be induced to make considerable sacrifices for the happiness of others, giving away, for example, things which

¹ Newhaven, 1856, p. 14.

they like, and preferring the pleasure of seeing others enjoy them.

The distinctive features of the male and female characters are observable among idiots. Female idiots are distinguished for their fondness for children, their love of finery, their greater gentleness, and more impressionable character. The lower class of idiots have no religion. Imbeciles can be taught the existence of a superior being, though their ideas thereupon are childish, and have a tendency to become anthropomorphic. Some imbeciles take up the notion of responsibility to a higher power, which distinguishes the religious man from the simply moral. They can learn the biographical and historical parts of Scripture, the precepts in the Gospels, and the parables ; but it is vain to try to teach them doctrines such as those contained in the Shorter Catechism or Thirty-nine Articles, which they neither can remember nor comprehend. The following story is literally true:—A mother said to her imbecile boy, “I fear I shall not live long, but I do not know what will come of you when I am dead, my son.” He answered, “Will there not be a hole in the heaven, mother, through which you could see me?” The idea of death interests them ; some of them are anxious to see the bodies of their companions who have died, but they are not afraid of ghosts, or of being in the dark.

Special talents in idiots have excited considerable attention. It will readily be conceived that in training-schools they should have got a very careful cultivation, and while they have been cultivated the other faculties have been frequently neglected. Thus, the disparity between the special cultivated talent and the other faculties, which are not only weak but neglected, is made very striking. There is a story of one Gottfried Mind, who was said to be a cretin, more or less imbecile. He was so skilful in drawing pictures of cats that he got the name of the “Cats’ Raphael.”

The following information about him is taken from a note to a story in a popular periodical called *Chatterbox*:—

“Mind died in the year 1814, in Frau Frendenberg’s house, in Berne. There are old men still living in that city who remember the poor cretin painter—the ‘Bernier Friedli,’ as he was called, or oftener still, the ‘Katzen-Raphael.’ Many of his drawings and paintings are to be seen in picture galleries in England, Russia, and Germany. Pictures representing groups of cats are frequently sold for Mind’s, which are really only copies. Genuine Minds are very rare, and difficult to obtain.”

There are instances of idiots of a low type who could be taught to draw correctly enough from a copy, but to paint even cats in different attitudes with skill and expression obviously requires the vigorous exertion of several mental qualities. It would be interesting to know the grade of imbecility and mental characteristics of this artist. If one considers that men of special genius are sometimes much behind other men in very commonplace qualities—of this Mozart is a striking instance—it will not be out of measure surprising that some imbeciles should be highly distinguished above other imbeciles by some special bent or talent. It strikes us that a constructive or mechanical turn is more frequently preserved amongst idiots than any other gift. Unless we are mistaken, this is also true of lunatics; for we have been several times much struck by seeing lunatics construct or invent machines requiring both thought and attention, who from their conversation seemed incapable of any consecutive mental effort. At any rate, there are idiots who have shown a remarkable aptitude for constructing articles in wood, for music, drawing, and even for arithmetic. Seguin, in his book on Idiocy,¹ gives an account of a blind idiot who has a remarkable talent for playing on the piano, and for

¹ P. 405.

repeating tunes which he only heard once. Dr. Trélat¹ tells us that they had in the Salpêtrière an imbecile born blind, affected with rickets, and cripple, who had great musical talents. Her voice was very correct, and whenever she had sung or heard some piece, she knew perfectly the words and the music. As long as she lived they came to her to correct the mistakes in singing of her companions ; they asked her to repeat a passage which had gone wrong, which she always did admirably. In spite of this rare talent she seemed quite destitute of vanity. "One day," Trélat tells us, "Géraldy Liszt and Meyerbeer came to the humble singing class of our asylum to bring her their encouraging consolations." Dr. Forbes Winslow² quotes a case of a man who could remember "the day when every person had been buried in the parish for thirty-five years, and could repeat with unvarying accuracy the name and age of the deceased, and the mourners at the funeral. But he was a complete fool. Out of the line of burials he had not one idea, could not give an intelligible reply to a single question, nor be trusted even to feed himself."

Griesinger³ has noted a remarkable memory for places in idiots of a low mental capacity. This is also noticeable in horses. When Cardan⁴ wrote that the horse surpassed man in memory, he must have referred to this particular exercise of it.

We have only two cases in the house of special talent : one is for drawing and carving in wood, the other is in a boy who pays special attention to the architecture and con-

¹ *La Folie Lucide étudiée et considérée au point de vue de la Famille et de la Société*, Paris, 1861, p. 19.

² *Obscure Diseases of the Brain and Mind*, London, 1863, p. 586.

³ *On Mental Pathology and Therapeutics*, translated by Drs. Robertson and Rutherford, p. 371.

⁴ "At cum in cæteris animantibus et superior homine memoria sit velut in equis."—*Cardanus de Consolatione*, lib. ii. p. 35.

struction of the house. A boy at Earlswood is stated to have the gift of mental arithmetic. "He adds together and multiplies three figures by three figures, giving the product with lightning rapidity." Mr. H. G. Atkinson writes¹—"I have seen an idiot woman with this faculty in excess, that her only delight when alone was to be occupied with questions of number." Dr. Howe says—"No. 225 has little use of language, his intellect is very limited, he is, to all intents, an idiot, yet he has an astonishing power of reckoning. Tell him your age, and he will, in a very short time, give you the number of minutes." Dr. Guggenbühl tells us that in Salzburg there lived in his time a cretin of somewhat higher intellectual powers, who used to solve the most difficult questions in mental arithmetic with incredible rapidity. They wished to make him a teacher of arithmetic; but as he had never been taught himself, he could not make his methods of calculation intelligible to others. It is clear Dr. Abercrombie's test would not apply to these cases, nevertheless such skill in numbers is extremely rare with idiots. These arithmetical imbeciles are the George Bidders and Zerah Colburns of their class. There is a man who is weak-minded or imbecile, who constructed a very elaborate model of a ship, which is in the entrance-hall at Earlswood. I believe it was overmasted and upset when put in water; but I saw him at work upon a model of the "Great Eastern," which he was building plank by plank in a very correct and systematic manner. We also saw a grotesque old fellow who reads imaginary articles out of the newspapers, some of which are said to be very funny.

Foderé, in his work upon Goitre and Cretinism,² speaking of cretins, remarks,—“Several of these individuals, endowed with so weak an intelligence, are born with a particular talent to copy drawing, for rhyme, or for music. I have known

¹ *Zoist*, vol. ii. p. 168.

² *Op. cit.* § lxxii.

some who have learned of themselves to play passably well upon the organ or harpsichord ; others who learned, without any master, to mend clocks, and to make some pieces of mechanism. That probably arises from a more perfect organisation of the organ on which such-and-such an art depends, and not on the general understanding ; for not only are these individuals not able to read the books which treat of the principles of their art, but they are put out when one speaks about it, and never arrive at perfection." Foderé, in these remarks, evidently refers to what he calls demi-cretins. The occurrence of special talents in idiots does not on the whole prove any more for the specialisation of the faculties in the different parts of the brain, than the occurrence of special talents in sane individuals.

CHAPTER XVIII.

ON THE BEST METHODS OF EDUCATING IDIOTS AND IMBECILES.

History.

IN the seventeenth century, St. Vincent de Paul, amongst his many works of benevolence, gathered together a few idiots in the priory of St. Lazarus, took charge of them in person, and attempted to teach them ; but his labours, though continued for years, do not seem to have been very successful. The first systematic attempts at the education of idiots may be said to have followed the first successful teaching of the deaf and dumb, prosecuted by Pereire about 1734-1780, and the Abbé de l'Epée (1770). Itard, the celebrated physician to the National Institution of Deaf and Dumb at Paris, shewed wonderful skill and sagacity in the training of the wild boy caught in the woods of Aveyron, though he long laboured under the delusion that he was reclaiming a savage instead of educating an idiot. His practical knowledge of the art of teaching continually kept him from being led away by a false theory. Itard never educated any other idiot, nor did he seem to know the value of the suggestions which his pamphlet contains.

In 1818 the effort was begun, and continued for several years, at the American Asylum for the Deaf and Dumb, in Hartford,¹ to instruct idiot children, and though the measure of success was not large, their physical condition was im-

¹ See the good article on Idiocy in the *North American Cyclopædia* ; New York, 1874. Written by J. W. Hawes.

proved, and some of those who were mute were taught to converse in the sign language. In 1828 a school for idiots was carried on for a short time by Ferrus and Leuret at the Bicêtre. In 1831 M. Falret attempted the same work at the Salpêtrière ; and in 1833 Dr. Voisin organised a school for idiots in Paris. None of these attempts, however, met with sufficient success to insure their continuance. In 1835 Haldenwang, a clergyman of Wurtemberg, had a small institution erected for the training of idiot children at Wildberg. In 1841 Dr. Seguin opened a school in the Hospice des Incurables de la Rue St. Martin, and not long after the idiots in the Bicêtre were placed under his charge. In 1840 Dr. Guggenbühl bought the Abendberg, and the year after he opened an institution for the education of cretins ; while much about the same time Saegert, then a teacher of the deaf and dumb in Berlin, began to take in idiots as pupils, and to study the subject. Guggenbühl's undertaking attracted great interest, and many distinguished travellers visited his beautiful mountain. Their favourable reports led to the foundation of charitable institutions for idiots in all the more advanced countries of Europe. The first training school in England was founded at Bath, in 1846, by Miss White. An institution was begun at Highgate in 1847, destined, in the course of a few years, to expand into the great asylum of Earlswood. The asylum at Baldovan, near Dundee, was founded in 1853 by Sir John Ogilvy, and the Scottish National Institution at Larbert was opened in 1864, under the superintendence of Dr. David Brodie, who for several years had been in charge of a school for idiots in Edinburgh.

Amongst the many distinguished men who fostered the first attempts to erect institutions for the imbecile was Sir John Conolly, one of those who first carried into practice a more humane treatment of the insane ; Dr. Andrew Reed, the founder of six important charities ; Dr. Coldstream of Edinburgh, and

Dr. Poole of Aberdeen. This improvement in the treatment of idiots soon passed to the New World, and in no country did it take a more vigorous root than in the United States. A list of the different asylums for idiots, with the dates of their foundation, will be found at the end of this volume. The treatment pursued in all these institutions is fundamentally the same.

The Treatment should be both Mental and Physical.

Nowhere is the maxim of Pestalozzi truer than in the training of idiots: "Nicht kunst nicht Buch das Leben selber ist das Fundament der Erziehung und des Unterrichts." Neither art nor book, but life itself, is the groundwork of education and teaching. To produce improvement we must act upon the whole being, upon the body as well as the mind, for idiocy or imbecility is not simply mental deficiency or inertness, to be removed or improved by a special course of teaching adapted to a low mental state, but a deficiency of nervous functional power, the result of various diseases of the brain and nervous system, and often associated with, and in some measure dependent upon, a feeble constitution. A deficiency of mental power, though the most important symptom, is far from being the only one. Though no doubt the mental faculties in uneducated idiots frequently suffer from want of exercise, teaching alone, in many instances, would be attended with little or no benefit. In the feeble the tone of health is to be raised; in the scrofulous the constitutional defect is to be treated; in the epileptic we try to diminish the number of fits or to make them cease entirely. Each case must be separately studied and treated by hygiene and medicine as it seems to demand. In all, the bodily frame is to be invigorated by exercise. While this is being done the work of the teacher may go on parallel with that of the physician.

In writing on the training of idiots we cannot be expected to enter into the whole subject of education, which the instructor must learn from another source. All that can be done here is to point out the difference between the training of idiots and that of ordinary children, and to indicate the kind of lessons which the teacher may find useful in giving. It must not, however, be thought that there is any set method or series of mental processes to which every idiot child should be subjected. If the teacher is compelled to make all the pupils in one class go through exactly the same lessons, it is more because he is compelled to do so, from the need of taking them all at once, than because he thinks proper that every child, however varying in taste and capacities, should have exactly the same kind of teaching. At any rate he can fairly assume that his pupils have all the normal mental faculties. But this does not hold good with the teacher of idiots, who has to deal with pupils not only of low but of very unequal capacities. He must therefore be able to form an estimate of the mental powers of his pupils and guess at what stage to begin, what faculties can be most readily called into cultivation, and what most require training and exercise. The difficulty of forming classes is very great in idiot schools. Age here is no test. The big are classed with the little, the young with the old. They are brought together for a few weeks on the footing of equal acquirements; but one learns quicker and leaves the other behind; one has greater capacity of attention, and can learn a longer lesson; a third makes no progress whatever in the same direction as his class-fellows, though, perhaps, he improves in some other respect, while more rarely a pupil falls back, and through fits, or some other nervous disease, requires a cessation of all attempts at education for the time being.

The Teaching must commence with very simple exercises.

It is scarcely necessary to observe that in a normal child there is a spontaneous evolution of the faculties, which commences almost from the day of birth. This process consists in observing its sensations, and drawing inferences from them ; in fact, this is the whole sum of human culture, but as observations become more difficult and the inferences more complex and abstract, the art of the teacher has to be used to quicken, correct, and methodise the spontaneous activity of the growing intelligence. Even in an idiot this spontaneity must exist, for without it intelligence could not even commence to grow, or the first step in the path of knowledge be made. In the case of idiots many things have to be taught which an ordinary child would acquire of itself, or pick up with scarcely a conscious effort from its mother or nurse. The child may be unable to use the muscles of its body from several causes—from utter stupidity and incapacity to direct the complicated machinery of the human body, or from a deficiency of nervous or muscular power ; and it is the duty of the medical superintendent to distinguish such cases. Even in early infancy idiocy may be often diagnosed from the slowness or awkwardness of the child's motions. If laid flat upon his face he will sink upon the floor, whereas a normal child of a few months will try to right itself or cry for assistance. Idiot children require to be taught to walk more carefully than other children ; even after they have learnt to do so their gait is generally awkward, and there are many muscular motions of the arms and legs in which they are deficient.

It would seem at first sight that a private teacher, such as a governess, who had the entire tuition of an idiot child, would come to her task with great advantages on her side, as she could devote her whole time to one pupil ; but, neverthe-

less, I do not remember ever to have heard of much being done in this way. Very likely she lacks the conviction, derived from experience or observation, that her efforts will not be thrown away, and the tact acquired by practice of getting round, past, or under difficulties. The influence of the mother under the same roof is often most unfortunate. I have several times been consulted by governesses in the difficult and painful position of having undertaken the education of an imbecile child, which the mother refused to admit as being wanting in intelligence. It may be doubtful whether it is a sadder sight to see the neglected idiot children of the poor or the pampered idiot children of the rich. Balzac, in his *Peau de Chagrin*, tells a striking story of a man who becomes possessed of a mysterious bit of skin. When he wishes for anything he is sure to obtain it ; but the talisman turns smaller with each accomplished wish, and it is understood that when the skin is all shrunk away the man will cease to be. The unfortunate, who can obtain everything he desires save the severance of his fate from the mysterious gift which he has rashly accepted, tries by the most elaborately-laid precautions to anticipate every desire. His carriage is always waiting for him night and day ; food is always ready for him ; every want is supplied before it is felt. Something like this is done by indulgent parents to their idiot children, who imagine, perhaps, that by catering for every wish, they can make up for the want of the intelligence which they are keeping enfeebled, or who dream that they can uphold the absurdest of all views of rank, the rank of an idiot ; as if intellectual superiority were not the most decided of all superiorities, and a pauper idiot could not be educated to be the better of an uneducated idiot in a wealthy man's house.

When should the Special Training begin ?

- There is a period in an ordinary life when it is generally

better that the teacher should succeed the mother in a part of the education of the child. This is also true with deficient children, only the teacher must do more for the child—be more of the mother, as it were, and more of the teacher too. She must teach it things which an ordinary child learns at home. The general opinion of experienced superintendents of training-schools is that this period commences about seven years of age. It is seldom advisable to remove an idiot child from his home, if he has any mother at all, before this time. There seems no reason to doubt that early admission to a training-school is of much greater advantage than a later one, improving the mental powers, eradicating bad habits, hindering their formation, and preventing diseases and diseased tendencies ere they become inveterate. Idiots and imbeciles often continue susceptible of improvement to a late age. In my own experience pupils who came in at a comparatively late age, say from twelve to eighteen, have been found to improve more than those admitted at an earlier period of life. The reason of this seems to be that, in Scotland at least, parents are much readier to apply for admission for children whose idiocy is strongly marked, or who are mischievous or troublesome, than for those who are docile, and present hopes of their intelligence opening. Parents very often persist in denying that their children are imbecile, though everybody round about has made up his mind on the subject for years. The length this deception can be carried, almost incredible to an indifferent person, might be treated with indulgent pity were it not sometimes the cause of serious mischief to the child.

Dr. Kind of Langenhagen, whose observations on the growth of idiots has led him ripely to consider the best age for a pupil being sent to a training-school, thinks that those who suffer from constitutional diseases capable of improvement under treatment cannot be sent in too soon ; but if the

circumstances of the parents or the conditions of the charitable institution do not allow of the pupil remaining longer than four or five years under training, that the best time to send him to the training-school is between the twelfth and sixteenth year.

Is the Association of Idiots with one another Hurtful?

I am frequently asked by parents whether intercourse with so many imbecile children as we have in an institution has not an unhappy effect upon the growth of the intelligence of a new-comer. This, however, is not the case. Imbecile children are no more injured by the presence of others of inferior intelligence than ordinary boys and girls are made childish by the appearance of a baby in the house. On the other hand, imbecile children are often ill-used and made to do ridiculous and improper things when they are sent to schools where the more intelligent pupils are unfeeling enough to take advantage of their simplicity. It is often indeed a great advantage for children to get rid of the uniform and hopeless inferiority in which they have hitherto lived, and to find that they have equals with whom they can interchange their simple ideas, and who give them a ready sympathy, and even to find that they have inferiors.

Dr. Langdon Down says : "I have seen the relative of a noble living in all the luxury of a country house so put aside by her sisters, senior as well as junior, that she never ventured on a remark, and at length lost speech. I have seen the same girl at Normansfield pass from monosyllables to thorough conversational language, amid the companionship and sympathy of her compeers."

How Low can we begin to Teach?

One of the earliest attempts at teaching may be said to be teaching habits of cleanliness to the child. It is often very difficult to form these habits, and they are very easily lost, for example, by a change of residence, or even the change of a bedroom, confusing the feeble intelligence of the poor child. Seguin gives directions how to cultivate the rudimentary perception of distance and the knowledge of direction. I have much doubt, while acknowledging Dr. Seguin's great skill in teaching, that in training the lowest grades of idiocy he has not sometimes confounded what was really the spontaneous work of the mind with the results of tuition, and that the view which he traces, in so graphic a manner, of one almost inert faculty after another having been called into healthy play by the mere art of the teacher, is to a certain extent deceptive. For example, he talks of teaching the properties of the plane; that is, the knowledge of a level surface on which to walk and place objects. He writes: "When a child cannot understand a plane, such as the floor or a table, we know it because he will try to put up things—ten-pins, for instance, in a variety of oblique attitudes, more or less distant from the vertical. This error is to be corrected by letting down a succession of plummets, falling vertically on the floor or table, between which the child soon finds the vertical for the pins. Planes, level or undulated, are to be made by the hand, spade, spoon, or roller, on sand, to the great delight of the children." Now I do not understand how a child could try to put up ten-pins, assuming these objects to resemble nine-pins, if he had no idea what a plane was. To try to put up a nine-pin is to try to place a bit of wood vertically to a horizontal surface; unless the idea of a horizontal surface were in the child's mind he could not make the attempt, and if the idiot dropped his nine-pin at random it was simply because he cared to hold

it no longer, and was indifferent where or in what position it fell. I take this opportunity of recording the many valuable suggestions I have gained in reading Dr. Seguin's book on Idiocy, as well as his Report on Education.¹

Teaching to Speak.

As a general rule idiots speak according to the measure of their ideas, and the most intelligent speak best and use most words. The greater number of those who remain mute do not speak simply because they have no ideas to express. The only way to teach them to speak is to cultivate their perceptive faculties, and to try to increase the growth and nutrition of the brain and other organs. As their mental faculties improve words come. In these cases the mental powers and the speech are symmetrical; but there are other cases where the mental manifestations and the speech are not deficient in ordinary proportion to one another. This is also true with normal children; in some speech comes slowly after their ideas; in others it nearly keeps pace with them. Occasionally we meet with imbecile children who run about, notice things, understand much of what is said to them, but who remain mute; while other imbeciles, with fewer ideas, learn to speak, and even to be voluble in talk.

Aphasiac Idiots.

Among the mutes at the Institution we had, for example, a girl aged eleven, whose deficiency was traced to convulsions in infancy and epilepsy, who could sew, make beds, take off and put on her own clothes, but who could only repeat her own name like a cuckoo. There was a boy, a small-headed idiot, who was a cunning and calculating thief, and a ready

¹ Washington Government Printing Office, 1875.

mimic ; he could understand much of what was said to him, and had, generally speaking, the intellect of a child of three years of age, but all attempts to teach him to speak totally failed. There was also a lad of sixteen—cause of imbecility, convulsions at teething—who copied letters, had ideas of propriety, order, and arrangement, could take care of himself, and was kind to small children. He knew many of the qualities of objects, and had ideas of number and colour. He could string beads, selecting the correct number and the proper colours to form the required pattern. He could pronounce all the different elements of sound, but many words were too difficult for him ; nevertheless, he was taught to repeat a good number of words, though often with great difficulty. He understood many more without being able to pronounce them. The number of words which he himself could recall bore a very small proportion to those he knew or could utter when prompted. He appeared to have a great difficulty in articulating ; but this, in some measure, might have been owing to disuse of the vocal organs. If told to repeat so many words, he would often utter some indistinct sounds, generally giving the same number of syllables or sounds and the tone of the words he was asked to repeat ; and although he understood the meaning of these words, he seemed quite satisfied with his own imperfect reproduction of them, and looked surprised that it was not found satisfactory. He readily dropped using the words which he had been taught, returning to his old mimic signs. This was to a less extent true of two other pupils in the house. M. L. recognised words spoken to her, and would pronounce a word shown to her on hearing the first syllable ; she knew the power of the letters of the alphabet, but could not name them.

Idiots seldom learn to speak much if they do not begin before six or seven. I have one pupil, B. N., who began as late as nine years of age. He has improved a great deal

during a training which has now lasted four years, but he still speaks imperfectly, like a child of two years old. He still has a slight paralysis on the left side of the face. Some of these cases occasionally utter a few words sufficient to prove that their vocal apparatus is not structurally deficient, and that, for the moment at least, it may be brought into play. As far as I can see, the deficiency is more often in the nervous centres than in the nerves or muscles. Where there is a want of synergy in the muscles concerned with the voice, one would rather expect stuttering or tremulous and imperfect utterance than mutism. They rarely want synergy in any of the other muscles, even in those supplied by the same nerves, and when they do utter a word or two at an odd time they generally pronounce them correctly. Speech is a very complex faculty, dependent upon the integrity of several functions, and liable to be deranged by a variety of diseases of the nervous system, as we observe in the trembling pronunciation so characteristic of general paralysis, in the lachrymose tones following paralysis from cerebral hæmorrhage or softening, and in the stuttering associated with chorea. In labio-glosso-pharyngeal paralysis the diminution or loss of the powers of articulation is accompanied by great impairment or loss of the power of swallowing. It is dependent on a local lesion, or disease of the corpora olivaria, and atrophy of the roots of the hypo-glossal and upper spinal nerves.

Amongst the deviations of ordinary aphasia or the perturbations of language met with in lunatic asylums, we have many analogies to what is observed in idiocy. Lunatics occasionally repeat gibberish, or use words out of their meaning, and seem surprised they are not understood, or repeat the last words said to them like an echo. They sometimes drop the verbs and articles, as idiots as well as the deaf and dumb are so prone to do.

Sometimes imbeciles unsuccessfully try to imitate sounds

without noticing that they have failed to utter the sound desired ; at other times they keep on repeating a word which they have learned after being asked to pronounce a new one. Occasionally, on being asked to repeat several words, they content themselves by repeating the last word or last syllable only, though when pressed they are able to say the whole sentence.

Relation of Speech to Thought.

Sometimes imbecile mutes commence to speak suddenly, without anybody being able to tell why. Sometimes they use words under deep emotion which they never did before, like the son of Cræsus, who never spoke the whole of his life till he saw a Persian soldier on the point of killing his father, when he called out "Man, do not kill Cræsus." This, Herodotus tells us, was the first time he spoke, and after that he used his voice (*ἰφώνας*) the rest of his life. Unhappily, the use of the voice in ordinary cases of idiotic mutism passes away with the emotion that called it for the moment into play.

Language itself is a well-nigh indispensable element in education ; sometimes it may impede thought, but it generally supports it. Words represent and recall definitions and generalisations, and little progress can be made in education unless the pupil has a language of one kind or another. In the deaf and dumb the perceptive faculties are generally well developed, but before being educated their mental powers are in a rudimentary state. After being educated at school they can describe events which struck them years before, but their thoughts never seem to have gone far beyond the visible world, and they are quite unacquainted with anything outside the sphere of their own observations. Deaf mutes never arrive at any ideas of God or immortality from their own observations and cogitations. Even after being taken to church for years they fail to comprehend that people assemble

together to worship a superior being. One deaf mute being interrogated about his notions previous to being educated said—"I knew but little about death. I dreaded to think that it would seize my body. The body would turn into a cold corpse, and lie beneath a dreary grave for ever." Another said—"I did not know anything of death before I saw it, but when death happened I observed it with feelings of fear. Frequently the thought of such death was very unpleasant to me. I refused to yield to death, and thought I would live for ever."¹

The first object in the education of the deaf and dumb is to give them a language, the language of signs, or the finger or written language, or to teach them to speak as is done in some of the German schools. With idiots too, it should be a prime object to give them a language, and they have at least this advantage over the deaf, that they can hear words, and they often understand speech, though they are mute. If all attempts fail to get them to repeat words, encourage them to make signs, and be not too ready to repress their signs in the hope that they will take to speaking instead. The signs, at any rate, exercise the faculty of language or expression, the power of associating symbols with conceptions, and the desire of exhibiting these symbols to others. If their mutism seems hopeless, teach them figurative signs, such as are done in deaf and dumb schools. These are what is truly called the natural language of the deaf and dumb. They are in fact symbols addressed to the eye, just as words are symbols addressed to the ear, and they are sometimes more suggestive and less arbitrary than words. The figurative sign for a man is made by touching the chin, as man is distinguished by having a beard. The sign for a woman is drawing the finger along the crown where the hair is divided ; the sun is

¹ These extracts are taken from the Forty-sixth Annual Report of the American Asylum at Hartford.

indicated by looking up and shutting the eyes ; to sleep by laying the head down on the hand ; to think by pointing to the forehead ; to dream by combining the two signs, so as to express thinking and sleep.

The Abbé Sicard attempted to give this system of expression a development equal to that of a spoken language, with signs to denote grammatical distinctions and inflexions ; and the sign language used in the different schools has been much improved by fifty years familiar use. It is assuredly a great pity that the different deaf and dumb schools do not adopt a common system of figurative signs, which would be equivalent to a common language.

To teach the finger language to imbecile mutes, as parents have sometimes suggested to me, is obviously founded upon an imperfect idea of the amount of mental ability and attention required in learning such a means of communication. Though imbeciles may be taught a number of figurative signs which may be very useful to them, their proficiency will necessarily fall far below that of the deaf and dumb.

Methods of teaching Speech.

The method which I have used in teaching imbecile children to speak is, as far as can be generalised, somewhat as follows. Granting the existence of ideas sufficiently numerous to make speaking a possible attainment, the desire to imitate sounds more or less, and the consequent use of the different muscles of the vocal apparatus, I am inclined to think that the trial may be made without any such preliminary drill, such as is directed in the work of Duncan and Millard, who, with several other authorities on the education of idiots, hold that at the outset the pupil is to be made to move his lips, jaws, and tongue, without uttering a sound, as the barber's brother in the Arabian Nights was directed by the Barmecide to use

his hands, lips, and jaws, in the carving and mastication of an imaginary banquet, and as the docility of the barber's brother in making the required motions led to his being in the end allowed to enjoy a feast in good earnest, we are told "that the success of these lessons entirely depends upon the grounding in the preliminary drill, and it is simply waste of time to attempt them if the muscles of the jaws, tongue, and lips, are not well nourished, or well under the command of the will."¹

But almost all those preliminary motions can be called into play, and are every day executed during the process of eating, as almost all the muscles used in deglutition are also used in speaking; and if the lips require separate exercise this will be much easier done by providing the child with a whistle, and encouraging him to blow upon it, than by making him press his lips on a flat piece of box wood. At the same time we do not deny the indirect advantage of ordinary drill in helping the utterance of speech by increasing the general command over the muscles.

Analysis of Vocal Sounds.

The first words which the pupil can be most easily taught to say are nasal sounds, like *me* and *no*, explosive consonants like *p* and *b*, though there are so many exceptions that there is some difficulty in making a general statement. The vowels, that is the real vowels separated from the diphthongs, are generally easily taught. Sweetmeats and other coveted objects may be held up before the children as a means of inducing them to imitate easy sounds, and the requisite motions of the lips and tongue ought, as far as possible, to be exhibited. It must, however, be borne in mind that these motions are often extremely delicate adjust-

¹ *On the Feeble-Minded Imbecile and Idiotic*, by P. Martin Duncan, M.D., London, and William Millard: London, 1866, p. 133.

ments of the different muscles of the tongue and fauces, and that some of them might be performed in different ways, and yet ensure the utterance of the same sound.

As the pupil acquires the capacity of imitating a few words, the teacher will be able to note if he be deficient in pronouncing particular sounds, and from this to find out the vocal organ which may be defective in function or structure. In doing so he ought to pay attention to the following considerations :—

The musical voice is produced in the larynx principally by the varying state of tension of the vocal cords ; but the speaking voice *i.e.* the articulation of words can be perfectly produced without the use of the larynx ; in this case speech is conducted in a whisper, hence we know that when a patient whispers the larynx is not in use. This may be owing to mental emotion, an indolent or feeble habit, deficient power in the laryngeal nerves or muscles, or by some affection of the lining mucous membrane of the laryngeal cavity, such as inflammation, swelling, ulcers, warts, polypi, or other tumours.

The vowels are uttered by narrowing the opening, and otherwise adapting the form of the oral orifices, fixing them in one shape and position, and then simply expelling the air from the lungs. The utterance of vowels can thus be prolonged as long as the breath lasts. This is not the case with the diphthongs, of which the English *i*, as in *silent*, is one. They are produced by pronouncing one vowel, and then rapidly changing the position of the mouth to that necessary for the production of a second vowel, as in $\alpha = ae$; *ai*, *a*, *i*, English *i*, *au*, *a*, *u* ; ω , *o*, *e* ; *oi*, *o*, *i* ; *ou*, *o*, *u*. *Y* at the beginning of a word may be regarded as a diphthong.

The consonants are produced by interruptions in the expelled stream of air, brought about by various motions of the throat, palate, tongue, lips, and jaws.

They are divided into two classes—

I.—*Explosive consonants, whose sound escapes with the breath and cannot be prolonged—*

b, p, formed by approaching the lips, *d, t*, formed by approaching the tongue to the arch of the palate.

In *b, d*, and *g*, the mouth is closed and opened more slowly than in *p, t*, and *k*, where the action of the lips, tongue, and throat, is more abrupt.

II.—*Continuous consonants, in pronouncing which the breath escapes by degrees, and the sounds can be prolonged—*

v, f, are pronounced by approaching the lower lips to the upper teeth.

s, z, are pronounced by passing the breath through the teeth, at the same time raising the tip of the tongue. Hence, when the front teeth are wanting, they are pronounced with difficulty.

m, n, are pronounced by passing the breath through the nose, and making at the same time certain vibrations of the throat and soft palate.

s, (soft), *b, r*, are pronounced by flattening the tip of the tongue and passing the breath between it and the front of the hard palate. In pronouncing *r* the tongue is more flattened than in pronouncing *l*. In this case the deficiency is in the tongue. Speakers who cannot pronounce *r* generally replace it by *l*, sometimes by *y*. *h* is only a breathing sound, produced by increase of expulsive power of the expired air.

Cleft palate gives a nasal timbre to the voice ; a highly vaulted palate gives a confused manner of speaking, and a tendency to clip or shorten words. When the lips are short, the muscles which move them weak, or the teeth protruding, there is often a difficulty in pronouncing the explosive consonants. This has been already referred to in the chapter on paralytic idiocy.

One imbecile female, aged twenty-three, cannot sound *p*, *t*, and *k*, using in their place *b*, *d*, and *g*. A boy, aged twelve, K. U., partially hemiplegic, is utterly unable to pronounce *k* at the beginning of a word; he also fails in saying *ch* and *th*; while a third pupil, a boy, aged nine, always substitutes *t* for *k*, and does not pronounce the sound of *l* after a consonant. Thus, if you ask him to say clack he will say tat; if you ask him to say pluck he will say put; if you ask him to say cuckoo he will say tutoo. This is owing to his raising the tip of his tongue instead of using the soft palate and back of the tongue. If the tongue is kept down even by a thin slip of paper, he pronounces *k* very plainly, and may be even taught to do it by enforced attention to the motion of his tongue.

B. N., the boy referred to at page 302, could not pronounce *b*, *p*, *l*, *f*, *g*, and *r*, and rarely uses an aspirate. He would say doat for goat, kenny for penny, toten for spoken, tack for sack, and so on.

Stammering, which is believed by Drs. Arnot, Müller, and others, to be owing to a spasmodic affection of the glottis, is not uncommon with idiots, and where it occurs must be dealt with on the same principles as recommended for other children.

It may be noticed that as stammering does not occur in singing, the patients ought to be exercised therein.

How to overcome deficiencies.

When, by patient and reflective use of such preliminary facts, the several deficiencies are traced to their real source, attempts may be made to remove them. Loss of the musical voice, as evidenced by hoarseness and whispering, ought to be treated medically or otherwise, as the nature of the case seems to demand. Sometimes the patient uses the musical voice

under the influence of emotion or desire ; while on other occasions he speaks in a whisper ; in this case he may, if fond of music, be induced to sing.

The interior of the larynx of the patient might be examined by the laryngoscope in hopes of finding lesions which could be treated surgically, or Morell Mackenzie's galvaniser might be used if local deficiency of nervous power were suspected.

In teaching imbecile mutes to speak, it is of course advisable to open the mouth widely, and show the pupils the different muscular motions of the lips, tongue, and throat, as far as these can be made visible.

When the deficiency is found to consist in malformation or weakness of the lips, it may be corrected by exercising these organs in articulation. The proper motions of the lips being more visible are more readily taught than those of any other part of the vocal apparatus, and, through patient teaching, all the sounds may be correctly produced. Certain consonants, such as *k* and *s*, which the patient cannot produce at the beginning of a word, can be occasionally pronounced in the middle ; thus the patient can be taught to say *istop* when he cannot say *stop*, and *icap* when he cannot say *cap* ; sometimes he can say *on* when he cannot say *no*. In this way the pupil can be taught to approach and finally to pronounce the desired word.

They should from the beginning be taught to speak loud. To the dull and lazy energetic utterance has a rousing effect. It is to be noticed that imbeciles, who are extremely anxious to save themselves trouble, readily fall into the habit of passing over difficult sounds or of retaining certain infantile conventional words, although they are perfectly able to utter any combination of syllables. Difficulties like these must be overcome by moral persuasion, and persevering exercise of the sounds habitually slurred over, and by refusing to give them objects

which they desire unless their names are properly pronounced. Deficiencies of pronunciation are frequently aggravated by lisping, as they become older and lose their front teeth, which, as already explained, is not uncommon with the idiotic and imbecile.

What Pupils benefit most.

In general it will be found of no use to try to teach idiots to speak who have never voluntarily uttered a sound ; but when they begin to say a few words the process can be much accelerated by the persevering efforts of the teacher. Great benefit is also derived from giving vocal exercises to those children who are deficient in pronunciation. When speech has fairly begun, a change of scene for a few weeks has sometimes a good effect in hastening progress, as it gives the mind new perceptions, new feelings, and something new to communicate. When the child has fairly begun to emit sounds, the best plan is to teach monosyllabic names of familiar objects, which ought always to be shown to him at the same time. When he is able to combine words he may be asked simple questions or taught nursery rhymes. The progress the child makes will of course depend very much on the extent of his mental faculties and the subsequent cultivation given to them.

Cultivation of the Senses.—Touch.

The sense of touch often requires careful cultivation. This is totally neglected in ordinary education, but in teaching the blind it is of the highest importance, and the instructor of idiots may derive much benefit from visiting a school for the blind. Touch and feeling are naturally cultivated along with the use of the muscles. The pupil ought to be taught to grasp firmly ; if he cannot do so spon-

taneously another hand should envelope his and close it forcibly upon an object. If he can grasp, but is feeble or unwilling to hold on, put him on the steps of a ladder and let him hold on to save himself. At a later date he may be taught to push a wheelbarrow, or to fill it with stones. Rude adjustments of the muscles are taught first, then finer ones. In the school we make them practise putting rivet-nails into holes in a board, winding strings, threading beads, tying knots, and putting in buttons. These apparently simple actions require to be taught in a careful and systematic manner. It often takes much trouble to teach an imbecile child to put off and on his own clothes. Sometimes it will be effectual to leave them a while in the cold with their clothes beside them, as Itard did with his pupil. The child must be taught to avoid the fire ; and this is not so difficult as might appear, though some idiots are fond of lighting matches or playing with flames, and few of them would have the sense to extinguish fire if it caught their clothes.

The pupil ought to be made to observe what is round, what is smooth, what is angular, and so on ; that the round will roll, that the smooth will glide, that the rough will rasp, and that the sharp will cut or prick. When snow falls, for example, take a flake and show the child that it is white and cold, close his hand upon it and show him that it has become hard. Make it into a snowball, and show him that it is round, cold, smooth, white, and damp. Make him hold a little snow in his hand till it melts, and put the snowball before the fire ; make him note that it is turned into water, and try to explain that this water goes off in steam, that the snow and rain come from the clouds. The endless variety of nature gives abundance of lessons like this, suited for the simple-minded. It is needless to go into detail by describing a series of processes, for instruction is not like the preparation of some chemical compound, to be obtained by placing certain

substances together of a given weight and at given temperatures, and then leaving them to react on one another. Those who have a talent for teaching will seize the method quickly and apply it to different cases, while with dull and indolent teachers it is apt to degenerate into a weary and listless repetition of "finger exercises," outside the mind of the pupil, as well as that of the so-called instructor, a mere automatic form in a new direction.

Cultivation of the Sense of Sight.

Everything should be taught upon an object ; that is, the object should be shown to the child, and he should be attracted or led to look at or examine it, when its properties should be explained, and the teacher should not pass on to any other thing else till he is sure the lesson has passed into the child's mind. The sense of sight is to be educated by making the pupil note the difference between light and darkness, and at a later stage by making him note the difference of colours, showing, for example, a ray of sunshine striking into a darkened room, showing bright colours in a bright light, and then teaching him to match them. This may be done by using coloured balls and making the pupil put them into sockets of the same hue, like those in the bagatelle board, or he may be made to match coloured papers or to string coloured beads. The recognition of the colour often precedes by a good while the name of it. We have known instances where the pupil learned to pick out black and white, and failed to distinguish other colours save by picking the black and white from them. The observation of the shape of forms can be taught in a similar way. Blocks of wood cut into the form of squares, circles, globes, triangles, etc., are given to the pupil, and he is directed to put them into the corresponding sockets.

Cultivation of the Sense of Hearing and Music.

The hearing of idiots is often defective, as has already been explained; but some parents are apt to believe that a child is deaf because it does not speak, and as many such idiots are very inert to sounds, it may require some careful experiments in order to ascertain whether they can really hear. The idiot is seldom inattentive to all sounds, if the mechanism of the ear be perfect. Guggenbühl used a gong to arouse the languid attention to vibrations. Many idiots who do not understand words, or pay no attention to the human voice, are fond of music, whether vocal or instrumental. They prefer lively tunes, which can be easily followed, and can be got to hum tunes even although they cannot speak. Thus the cultivation of an ear for music may be commenced at a very early period of education. The only method practicable in teaching music to idiots is to repeat the tunes over and over till they are caught and remembered. There is generally greater difficulty in teaching the words than the music of a song.

Smell and Taste.

The sense of smell may be educated by holding to the nose different bottles of substances with stimulating odours, until they are able to recognise them without seeing them. Where the idiot eats garbage or roots, the sense of taste is generally improved by careful watching and regular food.

Kindergarten.

All the exercises should be progressive; the completion of one lesson should be the starting-point of another and a higher one. The teacher should always keep in mind that

they are not ends of themselves, but means to an end ; that is, the improvement of the intellectual capacity. Many of the exercises in Froebel's system of infant training, generally called the Kindergarten,¹ are very applicable to backward children ; indeed, in my opinion, they are only applicable to backward children.

Gymnastic Drill.

The importance of drill and open air exercise cannot be exaggerated, both in correcting automatic and spasmodic motions, in strengthening the frame, and giving the pupil a more perfect command over his muscles. Sometimes the teacher is compelled to begin by holding the passive arms of the idiot and imparting a variety of motions, which in process of time the pupil accompanies with motions of his own, until he at length catches the spirit of imitation. Bad walkers may be taught to correct their gait by treading upon footsteps marked on the floor or upon the rounds of a ladder laid on the ground. The balance may be improved by making them walk across a plank. They should be exercised in catching what is thrown to them. Shooting with the bow and arrow is a very good exercise for the eye and hand, and I have seen some imbeciles become expert at it, only it requires considerable precaution in case of accident. What is called musical drill, that is going through a formal series of exercises, in keeping time with some musical instrument, is very popular with idiots. At Clapton Asylum I saw this species of drill conducted with great spirit by an old life-guard's man, who used a common tin whistle with wonderful effect. Dancing may be regarded as an advanced form of drill, and as such is very useful. As a suitable manual for drill for imbeciles, I can

¹ There is a good exposition of Froebel's system in a *Practical Guide to the English Kindergarten*, etc., by Johann and Bertha Ronge. London : Myres & Co.

recommend the *Gymnastic Exercises*, according to Ling's system, by Dr. Mathias Roth. Joseph Myres & Co., London.

Arithmetic.

Teaching numbers requires more than usual patience, as on this point idiots are peculiarly deficient. The knowledge of numbers, however, is necessary for so many transactions of life, that it cannot possibly be omitted. They must therefore be carefully exercised in counting objects, reckoning money, the number of days in the week and hours in the day; and even after obtaining an apparently considerable proficiency in arithmetic they are very apt to fail in a new application, or to be confused by some trifling change in the method of stating a question. Numbers with them must always be taught upon the object—upon the bead-frame, for example, or to count a certain number of beads or pebbles; anything will do if it be movable, and all of the same kind. See that the child can set apart so many beans, or string so many beads on a wire, and then teach him to repeat the corresponding number. When he can count thirty the pupil may commence simple addition—that is, by adding twos and threes together upon the ball-frame. About the same time they begin to learn the written symbols of figures, but it will be long before these can be substituted for the actual numbers counted out. One may begin adding figures, with the corresponding numbers in dots, as recommended by Pestalozzi, thus :—

$$\begin{array}{r} 2 \quad . \quad . \\ 3 \quad . \quad . \\ 4 \quad : \quad : \\ \hline 9 \quad : \quad : \end{array}$$

The abstract idea of quantity, represented by expressions, such as many, big, plenty, are generally taken up spontaneously. Most children who are educable at all can distinguish

between a big bit of bread and a small one, or a cup of milk full or half full.

The great difficulty in teaching numbers to imbeciles begins with those above five. Addition, subtraction, and multiplication may be got over, but few of them make much of division.

The shop lesson consists in having a number of different articles, weighing and measuring them, and selling them to the children for pieces of money, they being directed to count the articles, give the proper money in different coins, count the change; in short, going through all the ordinary operations of buying and selling. This exercise is with imbeciles in the highest degree useful and interesting.

Reading.

Learning the alphabet may be viewed in two lights—as a means of fixing the attention, and teaching the child to attach a name to a particular form, or the beginning of the process of learning to read. Parents are apt to attach great importance to progress in reading, saying that the child would improve if he would only learn to read; and if there is no improvement in reading, they sometimes assume that no progress has been made; but before reading can become a means of knowledge, the mind must have attained a considerable capacity. Many idiots can be educated in a great variety of ways who cannot learn to read, or learn to do so very imperfectly. Guggenbühl and Seguin resorted to the device of tracing letters in phosphoric acid on the wall of a dark room, in order to rouse the languid attention of the child; but it seems to me that a child who could only learn letters in this way would scarcely be able to combine them; in short, that with such a feeble intellect he could never be expected to learn to read a hundred words. Some idiots can only be

taught to combine words of one syllable, others of two. In any case their progress is slow, and requires extreme patience. It may take five or six years for an imbecile child to read an easy story-book.

The perplexing system, or want of system, in which our language is spelt, presents a great difficulty in teaching the imbecile to read, which is scarcely felt at all in German, and comparatively little felt in French. This has been very clearly exposed by Mr. J. M. D. Meiklejohn, late Assistant-Commissioner of the Endowed Schools Commission for Scotland, who writes :—

“When a child begins to learn to read, he sees a number of marks upon paper. He is told that these represent words ; and when he sees the letters *c, o, w*, he is told to say *cow*. Now these marks have no necessary or natural relation to the sounds and words they stand for ; they are, in fact, strictly and solely of the nature of signals. They are to the child and to all those who do not know their history merely arbitrary signs—arbitrary, but conventional ; that is, we grown-up people are all perfectly agreed what they mean. But the two necessary conditions of the practicability of a code of signals are :—1. That the same signal or combination of signals shall always mean the same thing ; and 2. That several different signals shall not be used to represent one thing. In other words, we always expect, when we see a signal, that it has one meaning, and that different signals cannot have the same meaning.

“Now these two necessary expectations are constantly baulked by the notation of the English language ; and, instead of finding a regularity and self-consistency in the black marks, the child finds out with much pain and weariness that he cannot trust his letters or signals at all. This arises from a twofold disease which has gradually crept into the notation of our language, and which may be shortly stated as follows :—

"1st. The same printed sign or symbol may be interpreted to the ear in from two to nine different ways.

"2d. The same sound may be interpreted to the eye by signs or symbols in from two to fourteen different ways.

"What are the results upon the experience of the child? He is troubled in a thousand different ways, perplexed and harassed, baffled and beaten, disappointed and dumbfounded by the character—or rather want of character—of this code of signals which he has to set himself to master. The wonder is that he does learn it at last; and we know very well that many children leave school with so weak a grip of this notation that they soon forget it, or at best never learn to read with ease and pleasure to themselves or their friends. To put the difficulties as shortly as possible, we may say that the child has to get over the following facts:—

1. "Out of the 26 letters, only 8 are true, fixed, and permanent quantities—that is, are true both to eye and ear. 2. There are 45 distinct sounds in our spoken language; and there are 150 distinct symbols (simple and compound) to represent these 45 sounds. In other words, there are 150 servants to do the work of 45. 3. Of the 26 letters, 15 have acquired a habit of hiding themselves. They are written and printed; but the ear has no account of them; such are *w* in *wrong*, and *gh* in *right*. 4. The vowel sounds are printed in many different ways; a long *o*, for example, has 13 printed symbols to represent it. 5. Thirteen vowel sounds have 104 printed symbols attached to their service. 6. The single vowel *e* has 20 different functions; it ought only to have one. 7. There are at least 1300 words in which the symbol and the sound are at variance—in which the word is not sounded as it is printed. 8. Of these 1300, 800 are monosyllables—the commonest words, and supposed to be easier for children."

In fact, these short words comprise almost the whole vocabulary of the imbecile.

But again, to quote Mr. Meiklejohn :—" The child sees a certain number of words like thou, noun, house, and mouth, and he draws subconsciously the conclusion that "ou" will always sound so. But he very soon lights upon words like your, four, mould, would, and so on, in which all his previous experience is not only quite upset, but he is forced to the conclusion that "ou" may have almost any sound whatever. If, then, he has happened to meet the first case of "ou" nine times, and the other cases of "ou" six times, his experience is really to be represented by $9, 6 = 3$. This is the most favourable way of putting it. The real fact is, that the exceptions make themselves quite as important as the rule ; that the child is not guided by rule at all ; and that he learns each word separately and as an individual."

An imbecile girl who had learned to read once said to me, as if a bright idea had just struck her, " You sometimes can know how to say a word from the way it is spelt."

The best way to teach them to read is to teach them to recognise syllables before teaching them to know their letters ; for this purpose short words should be selected, with which the power of the letters is equal. Some imbeciles learn to read words with little knowledge of the sense, and some, who cannot read, learn to spell words by hearing others do so. Not unfrequently they learn to spell quicker than to read. Imbeciles are not helped by the context like ordinary children. The generality of reading books where the lessons are easy at the beginning, and difficult at the end, are not well adapted for imbeciles, whose intelligence does not increase fast enough to keep up with this "step by step" process. The more intelligent class of imbeciles, in the end, learn to read books, and even to become fond of reading.

Writing.

Writing may be viewed in the same way as an exercise

for the sense of attention, and for the fingers as well as the commencement of a useful art. The commencement is often very difficult, and it is easier to make them begin by writing on a slate, after which they may be taught to write over a traced copy. Sometimes the hand of the pupil requires to be guided by the teacher for weeks, or even months, before he can form a letter. Sometimes idiots learn to trace letters without being able to read them, and some boys of considerable intelligence are very bad writers. On the whole, imbeciles seldom learn to write elegantly. In writing they have often a tendency to slant the letters strongly towards the left, which is difficult to overcome.

Moral and Religious Tuition.

If I do not write a long vague chapter on the moral training of idiocy it is not because I fail to recognise the vast importance of the subject. Without moral training mere education of the intellect would only render imbeciles more mischievous and cunning. But it is very difficult to frame general precepts which would be of any use in treating difficult cases. The moral culture of imbeciles differs from what we give to children, mainly in this, that they are likely to continue to be children, in most cases all their lives. Thus normal children may be encouraged to learn to work by giving them what they earn, and trusting them, in a great measure, to spend the money as they like ; but although a few pence may be given now and then to encourage imbeciles to work, it would be a mistake to allow the notion to grow in their minds that they themselves should be allowed to spend what they earn. As already said, imbeciles can be taught the simpler moral relations just like children, and they have no vicious habits unless corrupted by others. They can also be taught the main truths of religion, but this must be inculcated by teaching, not by preaching.

When puberty comes on it creates with those idiots whom it affects a difference between them and ordinary children. Great care and great good sense is required to tide them successfully over the first years, which are the most difficult. Imbecile girls are not safe as a general rule, either in the indigent and crowded quarters of large towns, or in large villages, unless they be incessantly watched, which indeed is very difficult.

The Teaching of Trades.

It is often a difficult question, what amount of special, and what amount of general training should be given? In an institution supported by private charity, the temptation is strong to single out a special faculty which is more prominent than the rest, and to try to educate it; forgetting all the others. The result may be very striking; an idiot who can paint portraits, an idiot who can make models of ships, which look very well out of the water, an idiot who can spell backwards with great rapidity; but the question comes—whether this is best for the pupils? Would he ever make his bread as a portrait painter, or a maker of models? If there is a fair chance of this, as sometimes happens, then of course his instruction is a great benefit to him; but if it should turn out to be an accomplishment never to be completed, and leading to nothing beyond, the time and labour bestowed upon him is not adequately repaid. On the other hand, a certain amount of cultivation, however small, given to the moral nature, to the perceptive and reflective powers, and to the general habits of an imbecile, is always an advantage both to himself and to his parents and guardians, and, entering into daily use, is not readily lost.

It is of great importance to teach imbeciles to work. They are naturally indolent, and work must be made a habit before

it becomes agreeable. Once they have fairly learnt it, it may fill up many dreary hours in their life, and may lead to their making their bread, or being very helpful to others. The trades generally taught in training-schools are mat-making, brush-making, shoe-making, tailoring, and the cultivation of the ground. Sash cord-making seems to promise well ; and cigar-making is carried on at the celebrated school at the Hague for Minderjarige Idioten.

Self-Supporting Imbeciles.

There are a good many instances recorded in the reports of training-schools of imbeciles who have learned to support themselves. This in general is after a long apprenticeship, of ten or twelve years. In any case it is no easy matter to bring about such results, as trades are taught in the ordinary Institutions for idiots, where they are very often withdrawn even before they are strong enough to commence any handicraft, either to be totally neglected, or to get under less advantageous circumstances the additional instruction which they require.

It is becoming every year more and more difficult for a man to follow any trade, such as we can carry on without the use of machinery and great division of labour. In a country like India, where the arts are still simple, or in Australia or America, where labour is so much in demand, our problem would be much easier to work out ; but in these islands the great bulk of inferior labourers support themselves by working in factories ; and those who take to skilled labour have as much difficulty in displacing competition as in doing work when they get it. The question whether many imbeciles are not fit for easy factory labour ought to be kept in view. I only know one instance of an imbecile supporting himself by working in a factory.

In America, where there is a great demand for bodily labour, and land is cheap and easy to be had, a much larger proportion of imbeciles are earning their bread. Several of those who have been cared for by Dr. George Brown in the Private Institution for the education of feeble-minded children, Barre, Mass., "are now," he writes, "filling stations of usefulness and respectability in life, having served in the army and navy during the war, are managing small farms, or maintaining themselves by some mechanical trade."¹ "Of five hundred individuals," writes Dr. Kerlin,² "received and trained at this institution, 81 are capable of earning their own support in domestic service, farming, or certain shop employments, under influences of favourable protection, such as have been named." Dr. Doren of the Ohio Asylum claims that 25 per cent of his cases have become productive workers, still requiring, it will be understood, a greater or less degree of kindly supervision.³ The kind of "favourable protection" needed is thus carefully defined by Dr. Kerlin:—

"It is certain that of those who are sent out from institutions of this kind as "self-supporting," there are but few individuals who will not *always* need judicious and considerate guardianship. They lack that judgment or forecast which anticipates and provides for the needs of the future—they possess little or no insight of character—they are either irritable and suspicious or weakly credulous, lacking that combativeness which is self-protection, and gives equality among fellows; hence without the guardianship of merciful relatives or friends, who are considerate of their defects, they fail of success, are bitterly imposed upon, or may become the easy dupes and facile tools of rascals and knaves."

¹ See *Report*, Barre, 1866, p. 14.

² Eighteenth Report of the Pennsylvania Training-School, p. 9.

³ *Notes of a Visit to American Institutions for Idiots and Imbeciles*, by G. E. Shuttleworth, B.A., M.D., etc., Medical Superintendent, Royal Albert Asylum, Lancaster.

In America the ordinary class of pupils at schools for the imbecile or feeble-minded are more educable, as the superintendents have the power of sending home cases proved to be insusceptible of improvement, and as they are sustained by the state, pupils are kept till their education is completed. As Pestalozzi has expressed it: Nur das vollendete ist brauchbar ; nur das vollendete führt weiter. "Only what is finished is useful ; only what is finished leads to anything beyond."

Results of Teaching.

As far as I know the benefits of a special mode of training idiots and imbeciles are not denied by any one who has seriously taken the trouble to examine the matter. But as those who are still sceptical will not likely have their doubts removed by quotations from the yearly reports of the different training-schools, it will be better to cite a few unimpeachable authorities whose verdict cannot be traced to interested motives. The list of testimonials, perhaps too long for the reader's patience, could easily be increased, for it is worthy of note that most of those renowned for their knowledge of the treatment of lunatics have been active in advocating and promoting a special treatment for idiots, witness Esquirol, Voisin, Falret, Schroeder van der Kolk, Conolly, Griesinger, and other eminent men specially to be cited.

Nearly thirty years ago Dr. S. G. Howe wrote in reference to the Pennsylvania School for Feeble-Minded Children :—

"It has been shown that idiots form no exception to the law that every form of organised life is capable of being changed for better or worse by surrounding circumstances."

"It has rescued some children of merely feeble minds from the imbecility into which they had fallen either through abuse, or neglect, or unwise treatment ; children who were considered as idiots, and who would have sunk into hopeless idiocy but for the help of this school."

"It has given speech to some who were dumb, and who, if left without special aid, would have remained dumb."

"It has greatly improved the condition of more than four-fifths of its pupils, as their friends will testify."

"They have been put into a higher state of health and vigour. They have been trained to the command and use of muscle and limb. They feed themselves, dress themselves, and conduct themselves with decorum. Their gluttonous and unseemly habits have been broken up. They have been trained to temperance, cleanliness, and order, till these habits have become a second nature. Their powers of self-control have been increased, and they strive to make themselves less unsightly and disagreeable to others."

"Many of them have been trained to habits of industry, so that they may at least be less burdensome to their friends."

"Their mental faculties and moral sentiments have been developed by lessons and exercises suitable to their feeble condition, and they have been raised in the scale of humanity."

In America the different state legislatures, after due inquiry, made a favourable report on the results of training idiots, which, under the circumstances, cannot be regarded as so much empty compliment, since it was followed by a grant of public money. To quote the Twentieth Annual Report for the New York Asylum for idiots—"Seven experimental schools, started under state patronage, have resulted in the establishment of as many public institutions, built and supported by these several states. In nearly every instance these experimental schools have been located at the state capitals, where their modes of operation and their results could be conveniently scrutinised by the members of the legislative bodies upon whose favour they were dependent. They are, therefore, now the exponents of the intelligent convictions of the respective legislatures that founded them."

Dr. John Charles Bucknill, F.R.S., Lord Chancellor's Visitor of Lunatics, and one of the authors of a well-known work on Insanity, has an article on Idiocy in the *Journal of Mental Science*, July 1873, from which I extract the following passages:—

"In point of fact, however, the neglected idiot is the most solitary of human beings, shut out by his infirmity from all feeling with his fellow-men—all sympathy; shut out also from all enjoyment of life, even animal enjoyment. Often he cannot use sight or hearing so as to distinguish objects or sounds. Often he cannot walk or stand. Often he is tortured with painful bodily infirmities. If the mental perceptions and emotions have in any way been developed, he is often still more tortured by malevolent or brutish passion. In a private house he is often an intolerable burthen, an incubus, a waking nightmare, and this being in an idiot asylum becomes sociable, affectionate, and happy."

"Let us think of that, and of the value of happiness in this life. Only be happy, my child, I have heard a good woman say to her peevish child; only be happy, all the rest will come. Make children happy, and they will not easily grow up wicked. I do not say—

' Be happy, happy, happy still,
Let virtue follow if she will.

"But of this be sure, that if the happiness of a community, even a community of idiots, be secured, the paths of goodness and of usefulness will not be left untrod."

"The happiness of the idiot is effected," Dr. Bucknill tells us—"First, by teaching him the use of his senses and of his muscles. By teaching him to see and to hear, to touch and to taste; by teaching him to speak, and, as far as may be, to converse. By teaching him to sit, to stand, to walk, and to play; then by teaching him to love and to trust, and not to hate and to fear; by replacing dull inanity or sullen morose-

ness with sociable attachment to others ; by training and framing all the conditions of body and mind, however imperfect body and mind may be, towards wholesome, useful, and agreeable activities, in place of chill and torpid inertness, or the dull ache of helpless discomfort ; to bring him from that former state in which he lay,

‘ Remote, unfriended, melancholy, slow,’

somewhat within the circle of bright and active human life and affection.”

“ Maybe I have dwelt too much upon this prime consideration of the gift of happiness, and have not stopped by the way, as I ought to have done, to lay proper stress upon the paths of utility which so often lead towards it.”

Dr. Bucknill then begins to tell of what had come under his observations in different training-schools for idiots, and very sensibly observes—“ The measure of good effected, as the French Academy pointed out in Itard’s case, depends upon ‘ the distance which separated the starting-point from that reached.’ To teach an idiot, who, to begin with, cannot walk, crams his food into his mouth with his hands, and bolts it, using his teeth mainly to bite viciously any one who comes near him ; who never puts on clothes or takes them off except by tearing them ; who has no more cleanliness and decency in his natural habits than an animal living in the fields, and incomparably less, therefore, than a dog or a cat, which respects the cleanliness of the house ; to teach such an idiot to walk, to work, and to play, to dig with a spade, or to kick a football, to feed himself with a knife and fork, to dress and undress himself, to wash, and behave in a cleanly and decent manner, to kiss his companion instead of biting him, to have the use even of a few words which he articulates and understands, even if he should not be able to read well, or to write a fair copy—I say that the difference between the starting-point and the winning-post, to me seems greater in

such a case than when a weak-minded man learns to build the model of a ship."

"When a higher starting-point has been attained, a far more surprising result may, indeed, be secured. The helpless imbecile may sometimes be educated up to the point which renders it possible to introduce him into the social life of our age as an independent and efficient man. This culmination of so-called idiot education must, indeed, always be rare, but that it is sometimes reached there can be little doubt. My friend and literary collaborateur, Dr. Daniel Hack Tuke, in writing of Herr Saegert, of Berlin, says, 'He assured us when we visited his school, in 1853, that he had indubitable cases of idiocy in which the head was small and malformed, yet in which the results of education were so triumphant that they were ultimately able to mix with the world without being recognised as idiots.' 'In one instance a young man underwent confirmation without the priest suspecting that he had been delivered from idiocy.'"

The following is an extract from a speech made at Dumfries in 1872 by Dr. W. A. F. Browne, late Commissioner in Lunacy, Psychological Adviser to the Crichton Institution, etc.

"It is a moral death—a shadow and not a substance—a soulless, mindless creature—which you clasp. And yet if wise treatment and education come to your aid—although I am not so sanguine as some of my friends of creating mature, self-guiding, and self-supporting men out of these rudimentary creatures—I am thoroughly convinced that every idiot is susceptible of improvement in temper, in habits, in thinking or acting power—that their moral stature may be raised—and there may be kindled up in their dark or twilight spirits faint glimmerings of reverence for superior beings, and that light which lighteth unto perfect day."

"I would like to conclude by submitting to you two contrasted facts. In the far West I once entered a bare and

humble hut. It was the home of a fisherman's family. Of these, seven in number, five had been affected more or less with idiocy. Three of the latter remained alive. On reaching their residence the parents were absent. The cottage—dark and gloomy, and filled with peat smoke, was occupied by three human beings. One lay motionless on a bed of ferns in the corner ; one sat on each side of the fire on rude stone seats, gazing on but not seeing the flame. They were dwarfs in size, deformed, with thick crusts enveloping the head, mute, without notion of time, or seasons, or light, or any external sensation save heat. There they had sat for nearly twenty long years, and may be seated there still ; not unkindly treated, be it observed, but simply neglected. In a short time afterwards, and in the same country, I saw a girl briskly engaged in household duties, capable of speaking a few simple words, gentle, happy, obedient, with some dim anticipations of a brighter world. This young woman had, under the generous and judicious benevolence of the father of the gentleman who is to follow me (Mr. Cowan), been trained at Larbert, and raised from a condition somewhat similar to that of the three miserable idiots whom we have described."

The necessity of a "distinctive system" of treatment for idiots has been repeatedly urged by the English Lunacy Commissioners, as, for instance, in the following passage from their Report for 1865 :—

"It has long been our opinion, as the result of extended experience and observation, that the association of idiot children with lunatics is very objectionable and injurious to them, and upon our visits to county asylums we have frequently suggested arrangements for their separate treatment and instruction. It is always to us a painful thing to see idiot children, whose mental faculties and physical powers and habits are capable of much development and improvement, wandering, without object or special care, about the

wards of a lunatic asylum. The benefits to be derived, even in idiot cases, apparently hopeless, from a distinctive system, and from persevering endeavours to develop the dormant powers, physical and intellectual, are now so fully established, that any argument upon the subject would be superfluous. The soundness and importance of such views are generally recognised and appreciated, and benevolent efforts are being made in several quarters to carry them into practical operation."

Lastly, the Special Committee on Idiots and Imbeciles and Harmless Lunatics, who met in London in the summer of 1876, at their sixth meeting, after discussion, passed the following resolutions :—

" 1st. That the treatment of adult idiots and imbeciles must depend upon the degree in which the character and faculties have been developed by previous education and training.

" 2d. That a small proportion may be permanently improved, so as to take care of themselves, either at their own homes or elsewhere, and to earn their own living.

" 3d. That a larger proportion may be improved, so as to support themselves under proper safeguards.

" 4th. But that there is also a large proportion of cases which, having achieved a certain improvement, are unable to get beyond this, and are, indeed, liable to retrograde, and for these suitable institutions are indispensable.

" 5th. Not only can idiots and imbeciles in asylums be employed with advantage to themselves, and the asylum be managed as industrial establishments for manufacturing or agricultural industry, but it is essential to the moral and mental well-being of the class that such a system should be adopted ; and, under good management, it may be made advantageous to the institutions in a financial sense, by diminishing the cost of maintenance."

Attempts have been made to have schools in lunatic

asylums for the poorer and less educated classes, but nowhere with the same success as at the Richmond Asylum Schools, near Dublin, under the charge of Dr. Lalor. In this asylum six teachers are engaged, and fully one-fourth of the patients in the asylum—120 men and 130 women—attended school daily during the year 1874. Dr. D. Hack Tuke,¹ who visited the Richmond County Asylum, advocates “the introduction of well-qualified and therefore well-paid schoolmasters and mistresses” into all our county asylums, as an important aid to treatment, and to the attainment of greater mental quietude, and as a means of lessening the gloom and monotony apt to creep into these institutions. It is possible that this method may do best amongst an uneducated population. At any-rate, neither ignorance nor insanity are likely to pass soon away, and will be frequently found together.

¹ On “The Richmond Asylum Schools.” By D. Hack Tuke, M.D. Reprinted from *Journal of Mental Science*, October 1875.

CHAPTER XIX.

LAWS FOR IDIOTS AND IMBECILES.

Idiots in Pagan and Mahomedan Countries.

IDIOTS are rarely mentioned by Greek or Roman writers ; being regarded as useless to the State, it is likely that they were seldom brought up. By the laws of Lycurgus sickly or deformed infants were exposed in a glen of Taygetus ; and from an allusion of Cicero¹ it appears that the laws of the Twelve Tables contained a similar enactment. Curtius² tells us that parents in India were compelled to bring new-born children to be examined by persons appointed for that duty, who ordered all those born with any signal defect to be put to death.

This custom is not mentioned by any other writer, and in the ancient treatise on Hindu law by Dáyabhága, an idiot is defined as a person not susceptible of instruction.

It appears that under the Empire the wealthy Romans kept dwarfs and fools for their amusement, and that some of these were imbeciles.

Seneca,³ in one of his letters, mentions the death of a female imbecile (*fatua*), belonging to his wife. She was a hereditary burden, and had become blind. She thought the house was dark, and asked to be led out of doors, where she expected to find light. This delusion of the poor imbecile

¹ *De Legibus*, iii. 8. See also *Plato de Republica*, lib. v. c. 9.

² *Q. Curtii Rufi* lib. ix. c. 1.

³ *Seneca: Epist.*, 50.

forms a text for philosophical reflection, otherwise it is not likely that her death would have been thought worthy of notice, for the Stoic says that he derived no amusement from the follies of the imbecile.

The greater respect for human life brought in by Christianity no doubt helped to save the lives of many idiot children. Montalembert, in his *Monks of the West*, speaks of a holy abbess in the Thebaid, to whom the people brought the poor idiots that were born in the country around.

The following passage in the Koran¹ may refer either to insane persons or imbeciles, or to both :—"Give not unto those who are weak of understanding the substance which God hath appointed you to preserve for them ; but maintain them thereout, and clothe them, and speak kindly unto them."

As the result of this sensible and kindly precept, the insane have been generally well treated in Mahomedan countries, and the Mussulmans can claim to have erected the first lunatic asylums.

Idiots may be seen wandering about in India, going everywhere unmolested ; and I saw one who was hanging about the tents nearly shot as a spy when we were marching down to Delhi before the siege. "In the zenanas of modern India," says Dr. Wise,² "it is usual to find at least one imbecile man or woman who is fed and clothed by the household, and whose incoherent, unintelligible talk, excites wonder and amusement." The Rev. Dr. Horatius Bonar (in his *Days and Nights in the East*, 1869, p. 227) remarks :—"A poor half-witted man, of middle age, we noticed going about quite at his ease, doing as he liked, nobody interfering, for insanity is revered as an *inspiration* in the east. More than once he went to an open-air coffee-house, or at least coffee-stand, set

¹ Sale's *Koran*, chap. 4.

² *Historical Notes on Insanity and on Asylums*, by James F. N. Wise, M.D. Calcutta, 1871.

up beneath the gate for the refreshment of travellers, and helped himself to coffee and bread at pleasure, the owner of the refreshment-box looking on complacently as the poor idiot devoured his goods without offering one parâh in return."

Dr. W. Lauder Lindsay, who quotes this passage, says "that at one time there can be little doubt a feeling similar to that amongst the Arabs existed in Scotland towards the 'daft' or 'witless,' a feeling thus expressed by one of our Doric poets :—

'Nor is there ane amang ye but the best
Wi' him wad share ;
Ye mauna skaith the feckless !
They're God's peculiar care.'"

*The Laws of England on Idiocy.*¹

The distinction between an idiot (*idiotia a nativitate*) and a lunatic (*idiotia a causa et infirmitate*) is of very old date in English law. Formerly the lord of the fee had the custody of the born idiot ; but in the reign of Edward II. the king began to have the ward of the lands of natural fools, taking to himself all the revenue beyond what was necessary for their subsistence, and delivering the land to their heirs when they died. "By the old common law," says Blackstone, "there is a writ *de idiota inquirendo*, to inquire whether a man be an idiot or not, which must be tried by a jury of twelve

¹ In writing this Chapter I have made use of the following works :—

The Law concerning Lunatics, Idiots, and Persons of Unsound Mind, by Charles Palmer Phillips, Esq., M.A., Barrister-at-Law : London, 1858.

A Treatise on the Medical Jurisprudence of Insanity, by J. Ray, M.D. London, 1839.

The Lunacy Acts, etc., by Danby P. Fry, Esq., Barrister-at-Law, etc. London, 1864.

The Medical Jurisprudence of Insanity, by J. H. Balfour Browne, Esq., Barrister-at-Law : London, 1871.

Bell's Dictionary and Digest of the Law of Scotland : Edinburgh, 1861.

men ; and if they find him *purus idiota*, the profits of his lands and the custody of his person may be granted by the sovereign to some subject who has interest to obtain them."

"It generally happened," adds Blackstone, "that the jury, instead of finding an idiot *a nativitate*, found him only *non compos mentis* from some particular time, which had a very different operation in point of law." In the case of the idiot the crown took all the profits of the estate ; in the case of the lunatic the crown acted as trustee, to protect his property and to account to him for all profits received if he recovered, or to deliver them to his heirs if he died. The relatives had thus a greater interest in getting the person affected declared a lunatic, or *non compos mentis*, since they did not thus lose sight of the profits of the estate.

The king generally gave his custody of the idiot or lunatic to some persons called a committee, but afterwards he vested it in the Lord Chancellor.

By the Acts 16 and 17 Vict., c. 70, and 25 and 26 Vict., c. 86, idiots and insane people were put in one class, under the definition of lunatics, which was construed to mean "any person found by inquisition, idiot, lunatic, or of unsound mind, and incapable of managing himself and his affairs."

Mr. Phillips¹ thus defines these terms :—

"It will appear from the authorities cited below that the proper sense to be attached to each of the above phrases has been fully considered and positively determined. We may, therefore, lay it down that every person whose mind from his birth, by a perpetual infirmity, is so deficient as to be incapable of directing him in any matter which requires thought or judgment, is in legal phraseology *an idiot*.

"Every person *qui gaudet lucidis intervallis*, and who sometimes is of good and sound memory, and sometimes *non compos mentis*, is, in legal phraseology, *a lunatic*.

¹ *Op. cit.*, p. 1.

"Every person who, by reason of a morbid condition of intellect, is incapable of managing himself and his affairs as an idiot or a lunatic, not being an idiot or a lunatic, or a person of merely weak mind, is, in legal phraseology, *a person of unsound mind*.

"*Non compos mentis* is the legal generic term which includes the three several classes just mentioned."

Dr. Ray tells us "that an idiot has been defined to be a person who cannot count or number twenty-pence, or tell who was his father or mother, or how old he is, so as it may appear that he hath no understanding of reason, what shall be for his profit, or what shall be for his loss ; but if he have sufficient understanding to know and understand his letters, and to read by teaching, or information, he is not an idiot." This is certainly a narrow definition, and it was probably much easier than the law-writers thought to educate a person out of the class of idiocy. According to Ray it is not easy to gather from various high legal authorities the precise meaning of the term of unsound mind. "It seems," he writes,¹ "to be agreed, that it is not idiocy, nor lunacy, nor imbecility, but beyond this, all unanimity is at an end. Lord Hardwicke held that unsoundness of mind did not mean mere weakness of mind, but a depravity of reason, or a want of it. . . .

"Mr. Amos, late professor of medical jurisprudence in the London University, has said, that "the term unsoundness of mind, in the legal sense, seems to involve the idea of a morbid condition of intellect, or loss of reason, coupled with an incompetency of the person to manage his own affairs."

The idiot has no civil rights. He cannot convey property, nor marry, nor appear at law by attorney, though a lunatic may. The idiot must appear in person, "and even when an attorney is employed for them the idiot should be described as appearing in person, or by guardian, according to the

¹ *Op. cit.*, p. 7.

nature of the case" (Browne). An idiot cannot exercise the suffrage, nor be a member of Parliament. In a case of rape the protection accorded to female children is not extended to adult female idiots, for there is a probability of consent, and indeed a possibility of solicitation which cannot be admitted in little girls.

It is generally stated that an idiot cannot appear as a witness, and this must hold good with idiots of very deficient intellect, but when they can observe and relate what they have observed, it does not seem clear that their evidence would be totally rejected in a court of law. In the case of *R. v. R. Perkins*, writes Mr. Browne Alderson, B. said—"It is certainly not the law that a child under seven cannot be examined as a witness. If he shows sufficient capacity on examination a judge would allow him to be sworn." "In many respects idiots are to be regarded as children, and their evidence, where it is unsatisfactory, will have failed in its value in virtue of the same, or similar qualities, which takes from the excellence of the testimony of very young children."

Moral Responsibility.

The moral responsibility of idiots is so like the moral responsibility of children that it is needless to enlarge upon the subject. An idiot or an imbecile, for example, may understand that it is wrong to beat a companion, or to steal, or to break windows, without being able to understand the moral guilt of forgery or of smuggling; or he may simply know that he is liable to be punished if he steals or breaks windows, without comprehending that there is anything beyond the mere will of the person set over him which renders punishment advisable.

The Lunacy Laws not made for Idiots.

As long as idiots had no property, or did not offend the law, or fall upon the poor-rates, the old code took very little notice of them. They were very rarely shut up in lunatic asylums, and were left very much to the mercy of their relations or guardians, legal or accidental, but when they became to be treated as lunatics they began to suffer from the thoughtlessness or ignorance of our legislators. The Lunacy Acts were really framed with an eye to insane people alone, and idiots were thrown into the bargain as something not worth special notice. Hence, when by the benevolent exertions of men, both eminent for their philanthropy and their knowledge of the treatment of the different phases of mental derangement, attempts were made to separate idiots from the insane, and to give them a special treatment, the state of the law interposed a great difficulty. To send a weak-minded child into a training-school, it was necessary to go through the long and formidable array of legal and medical certificates necessary to imprison a lunatic in an asylum, and the time of the superintendents was needlessly eaten away with making out the manifold returns, which, necessary or superfluous in a lunatic asylum, were useless and unmeaning in a training-school for idiots. Such restrictions only served to deter parents from sending the most educable cases into the only institutions where they could get a fit education, and to thwart the noble philanthropy of their founders and supporters. The English Commissioners in Lunacy themselves several times pointed out the grievous and useless character of these restrictions. In their Nineteenth Report, for example, they remarked :—"To facilitate the operation of such institutions, therefore, and the care and treatment of idiot children generally, we think it desirable that the requirements of the Lunacy Acts not essential to the special

object should be dispensed with, and that, among other things, all forms or orders, medical certificates, returns, etc., should be as much as possible simplified, and we hope shortly to see these objects attained by legislation. We are convinced of the necessity of early legislation in order to put such institutions upon a satisfactory footing."

The most grievous hardship which idiots suffered from these enactments was their imprisonment in lunatic asylums. Naturally gentle and timid, they were shut up in the same wards with the insane, people subject to furious fits of passion and dangerous delusions, and whose conversation and example are often very suggestive of evil. From their imitative tendencies they soon learned all the shameless indecencies brought before their eyes. They picked up oaths and began to simulate the wild manners of the insane. The medical superintendent would gladly have got rid of them, but had no power to refuse them, for there were always medical men to certify that they were idiots, and fit persons to be detained in a lunatic asylum. Truly, if the law allows medical men to certify away a man's liberty by consigning him to an asylum, it should also take care that the practitioner had received some instruction in the treatment of insanity.

Different attempts were made to get a change in the law by the directors and friends of the various charitable institutions for imbeciles, and two bills were actually prepared, one by the late Mr. Lutwidge, the Commissioner in Lunacy who was murdered by a lunatic when inspecting an asylum, and another by the Earl of Devon, to remedy the abuses of the law. In 1875 the subject was taken up by the Charity Organisation Society of London, which has several times done good service by drawing public attention to, and diligently investigating several questions of, great social importance. Its method of action has been to nominate special committees, composed in part of members of the Society's Council, and in

part of persons specially acquainted with the subject to be considered. It was on the lines laid down in the Report of the Special Dwellings Committee that Mr. Cross drew his Bill for the Improvement of the Dwellings of the Working Classes, and last year they published a valuable Report on the Training of the Blind. The committee appointed to consider what could be done for the care and education of idiots and imbeciles comprised a number of men of distinguished rank and services, combined with others known to have devoted much attention to the subject under consideration. Deputations from the committee visited the Earlswood Asylum, those at Clapton and Leavonside, and other similar institutions round about London, and the committee collected information from Scotland, Ireland, the Continent, and America. In this they were much assisted by the kindness of the Foreign and Colonial Secretaries of State, Lord Derby and Lord Carnarvon, by whose help a valuable collection of reports and statistical information was made, both on the condition of idiots, and of the deaf and dumb and blind, in different civilised countries.

In considering what has been done, and what is proposed to be done, for the care and training of lunatics, I am constrained to quote largely from the Summary and Agenda composed by Sir Charles Trevelyan for the use of the committee appointed by the Council of the Charity Organisation Society in 1875, and also from the admirable Report "On the Education and Care of Idiots and Imbeciles and Harmless Lunatics,"¹ also drawn up by Sir Charles Trevelyan, and this for two reasons,—that I neither could add anything to the matter nor improve the form in which it is stated. "According to the census returns of 1871 there were about

¹ "Education and Care of Idiots, Imbeciles, and Harmless Lunatics." Report of a Special Committee of the Charity Organisation Society, presented to the Council January 15, 1877. Longmans: London, 1877.

30,000 imbeciles and idiots in England and Wales, or one in every 771 of the population. Although the most afflicted and helpless of the human race, they are nearly all capable of being in some degree improved, so as to make their lives more tolerable to themselves and less burdensome to others, while a proportion of them may be made wholly or partially self-supporting. The young are especially susceptible of improvement, and the most favourable period is the earliest age at which the child can dispense with a mother's care. On the other hand, confirmed fatuity is likely to be the result of neglect in childhood and youth.

"But the provision as yet made for this unhappy class of our population is totally inadequate. More than 10,000 are scattered in union houses, where they cannot receive the training and supervision they specially require, and often seriously interfere with the comfort of the other inmates, meeting, in return, with ridicule and unkindness. A large number are in lunatic asylums, where they are bewildered by the delusions of the insane, or alarmed at their ravings; and, owing to their imitative propensities, they are made worse than they were before. Others remain at their own homes, where they can only in rare instances obtain the education and treatment suited to their condition, while too often they are grossly neglected.

"Private charity has proved unequal to the task. Only about 1100 idiots are in training in asylums on the voluntary principle, and attempts which have recently been made in the central and western counties to found new institutions have not been attended with much success. Afflictions of this class can only be effectively dealt with as a common burden by public administrative arrangements. As they prevail in a certain fixed ratio to the whole population, the means of mitigation or remedy should be provided, not merely at favoured points like the metropolis and a few large towns,

but generally throughout the country. They also affect all classes of society in nearly an equal degree; so that, while the removal of an imbecile member of a struggling working-class family is a necessity, there is no family so wealthy to whom it is not an object to secure for such a member the best scientific treatment, with a public guarantee of proper supervision. The machinery required to provide for this class of cases in every part of England is also so expensive, and so dependent for its efficiency upon proper organisation and inspection, that, although much incidental aid may be obtained from private benevolence, the necessary buildings and establishments cannot be set up and maintained in working order by any power short of that of the entire community, every member of which has a personal interest in the absence of the painful and demoralising spectacle of the neglected idiot, and in the knowledge that he is properly cared for, and improved to the extent of his capacity.

“Even now, in the contemplation of the law, every idiot and imbecile who cannot be provided for by his own family is entitled to a suitable provision at the public charge.

“The State has acknowledged this obligation in reference to the large number of idiots who have been received into public establishments as paupers or lunatics, although no arrangement has been made for their separate treatment and instruction there.”

Legal Provision for Idiots and Imbeciles in England.

“In England the legislation bearing on the provision for idiots and imbeciles may be briefly stated as follows :—

Under the Lunatic Asylums Act (16 and 17 Vict. c. 97, sec. 2), the Justices of every county, and (with certain exceptions) of every borough, are bound to provide an asylum ‘for the pauper lunatics thereof;’ and by section 132 of the same Act,

it is expressly enacted that the word 'lunatic' shall mean and include 'every person of unsound mind, *and every person being an idiot.*' In any case of default, the Home Secretary, on the report of the Commissioners in Lunacy, is empowered, by section 29, to require the Justices 'to provide a fit and sufficient asylum for so many pauper lunatics as, upon the report of the Commissioners, he may think fit and direct.' These provisions refer to one asylum; but, under section 30, the Justices are empowered to provide additional asylums where necessary, and the Home Secretary, on the report of the Commissioners in Lunacy, is likewise empowered to require the Justices to do so, in the event of default on their part.

"The Poor Law Amendment Act of 1834 (4 and 5 Will. IV. c. 76, sec. 45) prohibits the detention in any workhouse of any *dangerous* lunatic, insane person, or *idiot*, for any longer period than fourteen days; and the Lunacy Act of 1862 (25 and 26 Vict. c. 111, sec. 20) provides that no person shall be detained in any workhouse, being a lunatic or alleged lunatic (and the term 'lunatic' here includes an 'idiot'), beyond the period of fourteen days, unless the medical officer of the workhouse shall certify that such person is a proper person to be kept in a workhouse, nor unless the accommodation in the workhouse is sufficient for his reception."

"By the Poor Law Act of 1844 (7 and 8 Vict. c. 101), the Local Government Board may combine any number of country unions and parishes into school districts for the management of any class or classes of infant poor not above sixteen years of age; and children may be sent from parishes not combined if within twenty miles. The largest powers are given to build schools, provide necessaries, and pay out of a common fund.

"By the 19th clause of a Bill recently submitted to Parliament by the president of the Local Government Board, the provision in the 14th section of the Poor Law Amendment

Act, 1849, which enables guardians to contract to receive in their workhouse certain paupers chargeable to some other union or parish, is proposed to be extended to the managers of a district or other asylum for the reception of paupers, and to every case in which the Local Government Board shall give their consent.

“By the Acts 25 and 26 Vict. c. 43, and 31 and 32 Vict. c. 122, poor-law guardians may, with the consent of the Local Government Board, send pauper idiots to any institution for the reception and relief of idiots maintained at the charge of the county rate or by private subscription, or to any other union house where special arrangements have been made for the same purpose, paying their full cost therein.

“By the Elementary Education Act of 1870 (33 and 34 Vict. c. 75) School Boards are bound to provide for the education of all children, not excluding idiots, with all necessary teachers and appliances ; and children of the idiot and other afflicted classes have at least as strong a claim as other children to capitation-grants out of the annual vote for education, according to suitable standards of proficiency to be fixed in each case.

“But by far the most effective legislation which has taken place on this subject is the Act 30 Vict. c. 6, under which the managers of the metropolitan asylums district have the power, under the direction of the Local Government Board, to establish asylums for the sick, insane, and infirm, at the cost of the metropolitan common poor fund. These powers have been acted upon, greatly to the public advantage, by the transfer of the imbeciles and idiots from the metropolitan workhouses and lunatic asylums to the Caterham, Leavesden, and Hampstead Idiot Asylums, and by the arrangement subsequently made for separating the children, and educating them in a training-school at Clapton, pending the completion of a more perfect building at Darent, near Dartford, for five

hundred children, at an estimated cost of £75,000. In short, this branch of social administration has been satisfactorily provided for, not only by law but also in fact, as regards the great metropolitan population ; and the question for consideration appears to be whether this arrangement may not be extended to the rest of England, with such modifications as local circumstances may require, so that the idiots and imbeciles in each county or union of counties may be separately cared for in asylums or training-schools maintained out of the rates—a portion of the expense being recovered from the relatives when they are able to pay, and capitation-grants being made from public funds for every pauper idiot so maintained.

“There is still another class of cases. Persons of the ‘lower tradesmen’ or ‘upper artisan’ class, who are so unfortunate as to have an imbecile child, have real difficulty in obtaining proper care and training for him. They cannot appear as paupers before their boards of guardians to claim the benefit of the legal arrangements for destitute imbecile children, while the conditions of admission to the great institution at Earlswood are a tedious and expensive canvass, or a minimum payment of fifty guineas a year, both of which are impossible to them. According to the rules of the Earlswood Asylum, ‘paupers who are provided for by the law of the land’ are ineligible ; and the founder explained that the object was to ‘supply relief chiefly to the middle and poorer classes, and at the same time become a model and a motive for improvement in our pauper institutions.’ But it appears, from an analysis of the list of the candidates, that, having regard to the position in life and the occupations of the respective families, less than one-fourth answer to the description primarily intended to be relieved, while the remainder are simply pauper cases from all parts of the country, which ought to be fully paid for in charitable institutions by the

guardians, or to be supported by them in their own institutions. It appears, therefore, as an indirect consequence of the undeveloped state of our provincial poor-law arrangements for imbeciles and idiots, that the provision made by voluntary charity for the relief of the lower-middle and artisan class has been diverted from its original object, and these classes have been left without assistance to bear the burden of providing for the care and education of an idiot child, or to break down under it. Everything, however, will fall into its place when the provincial administration shall be placed upon the same footing of efficiency as the metropolitan. Persons of the lower-middle class with small means, and the well-to-do of the artisan class earning good wages, would be glad to contribute according to their means towards the education of their idiot children. They cannot pay fifty guineas, but they might pay some thirty, some twenty, and some ten ; and the charitable would gladly make good the deficiency."

The committee held sixteen meetings, during which every difficult question connected with the subject was carefully considered and discussed. The following contains the principal resolutions passed :—

" 1st. That idiots and imbeciles should be treated distinctively from other classes.

" 2d. That they ought not to be associated with lunatics in asylums.

" 3d. That they ought not, unless in exceptional cases, to be associated with paupers in union houses.

" 4th. That the distinctive treatment suited to idiots and imbeciles ought to be applied collectively, especially in the earlier stages of education.

" 5th. That idiots and imbeciles cannot with advantage be placed in ordinary schools with other children.

" 6th. That the improvement of idiots and imbeciles

would not be promoted by boarding them out ; but in certain cases boarding out, under proper supervision, is not unsuitable to harmless lunatics.

“ 7th. That the education of idiots and imbeciles should be based on physical considerations.

“ 8th. That the education of idiots and imbeciles should commence at the earliest age at which they can dispense with a mother's care, and the subsequent stages should depend upon the capacity developed by them.

“ 9th. That idiots and imbeciles should have a thorough industrial training, so as to enable them, as far as practicable, to support themselves, or at least to contribute towards their support, when circumstances render it necessary ; and—

“ 10th. That idiots and imbeciles of all classes should, as far as may be prudently done, be also encouraged to cultivate any literary, scientific, artistic, or mechanical faculty they may happen to possess, or be otherwise furnished with employment, so as to promote their self-respect, and to make them feel that they are of some use in the world, or, at any rate, to occupy them pleasantly.”

The deliberations of the committee and sub-committee resulted in the drawing up of a report, on which it is intended that a Bill should be introduced into Parliament. The object of this proposed measure is to extend the provisions of the Act 30th *Victoriæ*, cap. 61, brought in by Mr. Gathorne Hardy for the metropolis, to the whole of England. It is proposed to take young and educable idiots out of poor-houses and lunatic asylums, and send them to institutions where they should be suitably educated and trained ; that these training-schools should be supported partly by local and partly by imperial rates, and that they should be under the charge of governing bodies composed of representatives of the local guardians and magistratures and of persons appointed by the Crown. The committee also recorded their opinion—

“That families which, although able to pay their way under ordinary circumstances, would be reduced to destitution if required to defray the entire cost, should be charged at such rates as their means will allow for an idiot, imbecile, or harmless lunatic member admitted into a training-school or asylum ; and that the privilege accorded by Act of Parliament to the blind and deaf and dumb—viz. that relief given to children should not be deemed to be parochial relief given to their parents—should be extended to idiots, imbeciles, and harmless lunatics.”

The difficulties connected with the disposal of grown-up idiots are thus met by the committee :—

“When persons belonging to this unfortunate class have been brought by proper training in childhood and youth to the highest degree of improvement of which they are capable, it must be determined how they may best be disposed of during the remainder of their lives. A few may be returned to their own homes as cured, and will become merged in the mass of the population. A large number may be employed, as they often now are, under the superintendence of members of their own family or other persons entrusted with their care, in various handicrafts, in doing the rough work of large households, in gardening, and even in ordinary agriculture and manufactures. Another field of employment for weak-minded men and women is the washing and other domestic service of public institutions, including the idiot asylums themselves and lunatic asylums and union workhouses, care being taken that only suitable cases are selected for the purpose, and that proper regulations are laid down for their protection. Harmless lunatics, who are incapable of work, and require only ordinary supervision and kind care, may be boarded out in trustworthy families. But after making all these deductions, a large proportion of the young persons who have passed through the training-schools will prove unfit to

be restored to society, even under these modified conditions, and for them adult custodial asylums must be maintained, at which they may be permanently cared for in the most economical manner, with the advantage of constant medical supervision. But such is the sustaining, healing influence of regular employment, that even the adult asylums ought, as far as possible, to be managed on the principle of industrial establishments, having gardens, farms, and workshops of various kinds connected with them, to one or other of which every patient capable of doing anything should be attached. Such a system, properly carried out, would diminish the expense of the institutions, and, while the individual cost would be less than it can be in scattered workhouses, the most scientific and humane treatment would be secured. Training-schools and adult asylums, however they may differ in their internal arrangements, have mutual relations which often make it desirable that they should be in each other's neighbourhood, and under the same general superintendence. Cases differ so much in their circumstances that no general rule can be laid down as to the age at which the education of idiots can be said to be completed, and there ought therefore to be the utmost freedom of communication between those who are charged with the management of the juvenile and adult institutions, and a large discretion should be allowed as to the age at which the pupils should leave the juvenile institutions."

It was also proposed that adult idiots, imbeciles, and harmless lunatics, should be separated from the ordinary insane and sent to custodial asylum.

The objections likely to be made on the score of increased expenditure are thus met :—

"For the most part, what is proposed is, not to impose a new burden upon the public, but to provide in a more satisfactory and absolutely essential manner, in separate

training-schools and custodial asylums, for persons whose maintenance is already chargeable to the rates and public funds ; and so far as the benefits of the system may be extended to a class above the destitute poor, the assistance given will be wholly or partly paid for by the families concerned, according to their ability. Owing to the overcrowded state of the lunatic asylums, new buildings are imminent in many counties, and the real question for consideration is, whether the existing asylums should not be relieved from this unnecessary burden, and the additional accommodation should be provided, according to an improved classification, consistent both with administrative economy and with the well-being of every class of the insane. The committee especially rely upon the systematic training proposed to be given to idiot children for the means of reducing the expense to the nation. Whatever may be the cost of educating them, the cost of neglecting them is greater still. They must be supported in idleness, misery, and mischief, if they are not taught to work. It is difficult to say exactly what result may be obtained if they are employed, under proper superintendence, upon work suited to their capacity ; but it must, in the aggregate, be very considerable. The relief given to industrious families, whose exertions are at present trammelled by having to take care of an idiot child, must also be credited in the national account."

In the asylum at Clapton for London pauper idiots and imbeciles, the children are not under any lunacy certificate whatever, nor is any notice of their admission sent to the General Lunacy Board. The medical officer of the workhouse certifies that the person sent is, in his opinion, a chronic and harmless lunatic, idiot, or imbecile, such as might lawfully be retained in a workhouse, and a fit person for admission into the Metropolitan District Asylum. This is confirmed by a member of the Board of Guardians, generally the chairman or

vice-chairman. Pupils are not at present retained at Clapton longer than seventeen years of age ; if not fit to be discharged they are shifted to Leavesdon and Catherham. In these establishments, designed for adults, the forms of admission are the same.

I myself have had the pleasure of residing for ten days in the Clapton Asylum during last summer. At that time it contained 300 idiot pauper children, all withdrawn from the homes of the London poor. What a vast amount of diffused misery is here relieved. It is difficult to believe that those who talk churlishly or contemptuously of this new offshoot of Christian charity have fairly considered what they are talking about. In some quarters there seems a revival, at least in words, of the hard-hearted features of paganism. I have heard people say that all idiot children should be drowned, on the same principle all chronic lunatics should be shot ; and I have read a pamphlet, very well written, in which it was argued, on Malthusian principles, that every third child should be put to death. This proposal was apparently made in good faith, without any of the ghastly humour which made Dean Swift propose that the children of the Irish poor should be killed and eaten ; but if society saves idiots from being drowned in infancy, it should also see that they are not drowned in neglect, squalor, and misery. Idiocy or imbecility in the children, striking at the root of wishes and hopes very dear to the human heart, is a sore and life-long grief to parents ; but when it appears in a poor and struggling family, and, as not unfrequently happens, visits two or three children in succession, it brings so many miseries and hardships upon the family, that every man who has got a kindly heart ought to be willing to do a little to help them.

The two Commissioners in Lunacy, on inspecting the Clapton Asylum, made the following entry :—"The ages of the children under care and treatment range from five-and-a-half to

sixteen years. At that maximum age, since all paupers (according to the view taken by the Local Government Board) then become adults, the boys and girls are transferred hence, and their special educational training, we believe, comes to an end. If this be so, we think it is to be regretted, especially in those cases where the past gives hope of such future improvement under training as would fit children, albeit of slow apprehension, ultimately to earn their own livelihood in the outside world. We trust that it may be found practicable to modify this practice of adhering strictly to the age of sixteen as the time for removal."

Few who understand the machinery of a training-school will disagree with the recommendations of the Commissioners. Imbeciles, as we have seen, are in general delicate and slow of growth ; and, as their intelligence requires much cultivation before they can be put to a trade, fourteen may be considered an early age for them to begin to hold a plane or handle a spade, or even to be seated at tailoring or brush-making. Five or six years are usually required for an ordinary apprenticeship to such trades. How then can it be expected that imbecile boys should learn any work worth the trouble of teaching from fourteen to sixteen? Round the site of the new asylum, which is building for the pauper idiots of London, at Darenth, near Dartford, there is about 100 acres. Is this ground to be cultivated by imbecile children? Imbecile girls, too, cannot be taught to work so as to be good servants, save by the steady application of a good many years after they have become strong enough to do some work. At first they are far too childish and trifling, and their system is too ill developed to allow them to be put to any hard work. The teachers, and all who come into practical contact with the children, will at once recognise that the conditions under which their undertaking is done is such as to allow only a very partial success, and they will hardly retain

their zeal and patience under circumstances so discouraging. The guardians fear the dangers attendant upon puberty, and this is a real danger. But will it not exist in Catherham or Leavesdon, or anywhere else? Is it not inherent in human nature? Let us be neither sentimental nor cynical, and look at such matters with the necessary amount of cool common sense. If the education of imbeciles is to cease with puberty it seems to me doubtful whether much will be effected. In a good many instances puberty never appears at all, or appears very late; but these are generally the least educable cases. In other imbeciles it comes on before sixteen. It is indeed a part of the education, especially of imbecile girls, to instil correct feelings and conduct into their minds, and this should be done by the governesses or matrons of a training-school. At any rate the danger clearly lies in both sexes being together in one building. Then why expel both alike? To expel adults of one sex is surely enough. Could another asylum not be had for the other sex instead of consigning the youth of sixteen to the incurables of Leavesdon or Catherham? Something like this is done already, for there were twenty-one adult imbecile women working at Clapton amongst the children.

It seems best that institutions for idiots should be of two kinds, educational and custodial; and, as a general rule, adults should not be allowed to be too numerous in the training-schools. A few, on the other hand, are useful there in doing work they have got accustomed to, and in watching and encouraging the younger ones. Grown-up imbecile girls, too, are very useful in looking after the younger children, with whom they have a certain community of feeling. They form a very desirable link between the younger children and the paid nurses. They are much more willing to remain beside the children, and many difficulties have been tided over, and many accidents have been avoided, by their affectionate care.

I have enlarged on this subject, as it has some important practical issues ; and if the form in which I have put my views may appear somewhat dogmatic, it is really owing to the desire of being brief, and not trespassing too much upon the reader's time.

Laws of Scotland on Idiocy.

The old law of Scotland¹ distinguishes between natural fools, idiots, and furious persons ; and the nearest agnates or kinsmen of idiots were made their tutors or curators, after the disposition of the Common Law. This was done by taking out a brieve of idiocy, and bringing the case before a jury to inquire as to the fact of the idiocy or insanity, and settle who was the nearest agnate of twenty-five years of age. The powers of the curators to an idiot were the same as those of tutors to pupils, and the curatory expired either upon the death of the person cognosced or upon his recovery, the latter event being certified by a declaratory judgment of the court. The expenses of cognition were, however, so great, that the process was never gone through, save when the idiot was likely to fall heir to property enough to pay for it.² The sovereign, as *pater patriæ*, was guardian both of idiots and of furious persons, standing to the latter in the position of a mere trustee, since their recovery is never despaired of. The guardianship was generally delegated to subjects. At present the care of an idiot's property is left in the hands of relations.

¹ James III. par. 8, cap. 66 ; James VI. par. 10, cap. 18.

² The following passage is from the Eighteenth Annual Report of the General Board of Lunacy for Scotland ; Edinburgh, 1876 :—"We have repeatedly pointed out that there is a want of some economical and effective procedure for the administration of the property of lunatics when of small amount ; and we have stated in former reports that we should be glad to see effect given to the suggestion contained in the Fourth Report of the Scotch Law Commission, p. 31, that in cases where the funds do not exceed £1000, the authority to appoint a curator, at present possessed exclusively by the Court of Session, should be extended to the Sheriff."

Bell tells us that in Scottish law a distinction is taken between an absolute idiot and a person with some sparks of reason. The latter, it is said, may, without the consent of curators, execute deeds of lesser moment.

It may be here noticed that the law of Scotland divides people into three classes, according to their ages. A girl ceases to be a pupil or child, and passes into the stage of puberty at twelve; a boy at fourteen. From this period up to twenty-one they are called minors, after which they become of lawful age. The tutor acts alone, the pupil having no person in law, while the minor acts with the advice and consent of the curator.

The old law was clearly on a sound basis; it viewed an idiot as one who should remain a child for life. The new Lunacy Acts, treating the idiot as a madman, was a retrograde step, and inflicted much injustice upon a helpless and innocent class.

According to the Poor Law Act of 1845, while "insane or fatuous poor persons should be sent to an asylum, poorhouses are of use for providing for those persons who, from weakness or facility of mind, or by reason of dissipated and improvident habits, are unable or unfit to take charge of their own affairs."

As far as I know, this clause is still in force. Such persons, indeed, form a considerable proportion of the inmates of poorhouses, though some of the governors of these establishments seem disposed to avail themselves of the Lunacy Acts to oppose the entry of imbeciles though not certified as lunatics.

In the Act of 20th and 21st Victoria, the word "lunatic" means and includes "any mad or furious or fatuous person, or person so diseased or affected in mind as to render him unfit, in the opinion of competent medical persons, to be at large, either as regards his own personal safety and conduct, or the safety and property of others, or of the public."

In the form of order to be granted by the sheriff for the reception of a lunatic, it is provided that one may say that the person to be committed "is a lunatic, or an insane person or an idiot, or a person of unsound mind."

In the 25th and 26th Victoriae, the word lunatic means and includes "every person certified by two medical persons to be a lunatic, an insane person, an idiot, or a person of unsound mind." Idiots have consequently been treated as lunatics, and have been shut up in lunatic asylums along with them, without any separation or attempt at separate treatment. Some of these idiots no doubt are unmanageable inveterate in their bad habits, and vitiated by persecution and vile example; but others are of tender years, docile, and educable.

In the same Act there is a clause (vii.) in which it is said "It shall be lawful for the Board to grant licenses to any charitable institution established for the care and training of imbecile children, and supported in whole or in part by private subscription, without exacting any licence fee therefor and such licence may be in name of the superintendent of such institution for the time being."

In this clause it will be observed that the word imbecile is used and not idiotic. The meaning of the word is not defined in the Act, but in common speech it signifies a less marked degree of stupidity than that which constitutes idiocy. Thus imbecile persons include idiots, but are not themselves included by the latter term, in the same way as stupid includes imbecile without itself being included. All imbecile and idiotic persons are stupid persons, but all stupid persons are not imbecile or idiotic; and all idiotic persons are imbeciles, but all imbecile persons are not idiots.

Under this clause, passed in 1862, the institutions for imbeciles at Larbert and Baldovan held a legal existence. No sheriff's order nor certificate of lunacy was required

Though notification of the admissions, discharges, and deaths, were sent into the General Board of Lunacy, and the Institution was inspected by the visiting commissioners. At Larbert, from the beginning, a considerable proportion of pupils could not be called children in respect of their age, but the proportion of such cases did not become greater. The directors were always watchful that the Institution should not lose the character of a training-school. Many adults returned to their homes, and some whose tendencies seemed to render them unsafe for a residence in the Institution were dismissed.

But owing to the want of a custodial asylum there was a great difficulty about the disposal of such cases, if their parents were dead, or if they had to go into miserable homes, situated in bad neighbourhoods or poor localities. Some of our pupils, too, had parents or relations who were not very fit to look after them, while others were incapable, from poverty, of doing so. Others were found very useful in the establishment in teaching and training, and watching over the rest. Thus matters went on from 1862 to 1876, when the Board of Lunacy discovered that all parties had been breaking the law, and that the superintendents of Larbert and Baldovan had no legal power to keep pupils in the house beyond the age of eighteen years. They, however, proposed to grant a license as for a private lunatic asylum on the payment of the fee to the secretary customary in such cases, and that the adult imbeciles should be admitted under ordinary lunacy certificate, certified by two medical men with the order of the sheriff, instead of being simply certified as imbecile by the medical superintendent of the Institution. This proposal to turn the two institutions into two licensed lunatic asylums was not entertained by the directors, either of Larbert or Baldovan. In fact it would not have been possible to overcome the dislike of a people naturally proud and cautious, and jealous of legal forms, to resort to a procedure framed and

intended expressly for the imprisonment of lunatics, in order to secure permission to continue the education of an idiot or an imbecile at a training-school. There were many pupils of backward intelligence who, but for such training-schools, would never have come under the notice of a Commissioner in Lunacy, but if certified as proposed, they would have become liable to be transferred to a lunatic asylum.

Under the circumstances, the directors of Larbert and Baldovan removed all their pupils above eighteen, and tried to do their best with educating those below that age.

It has been quoted as an axiom in law, that no one can be detained anywhere save under some warrant; and that when imbeciles or idiots cease to be children, they can no longer be detained by the consent of their parents or guardians; and as they cannot give a legal consent, some formal arrangement is needed. In point of fact, imbeciles requiring such care have not ceased to be children, and this is precisely the reason why they cannot give a legal consent. A similar view of the question has been taken by Dr. W. A. F. Browne, late Commissioner in Lunacy, and now psychological adviser of the Crichton Institution. He writes that "the disputed clause vii. was undoubtedly originally intended to relieve such institutions as Larbert from all taxes, burdens, licenses, fees, etc., which would now be imposed by the action of the Board of Lunacy."

"That the determination of a given age at which discharge must take place is altogether arbitrary, as the *physiological* epoch of puberty occasionally never occurs at all, and sometimes never until a much later period than eighteen years.

"That while it may be granted that lunacy is a generic term, including idiotism as a species, it would be absurd to style the same individual an idiot and admissible into a school until eighteen be reached, and then to regard and treat him as a lunatic for whose detention a sheriff's warrant is required.

"That to create the Larbert Institution into a private asylum under license, and into which admission can be obtained for individuals of a certain age only by medical certificate, sheriff's warrant, etc., will prove very damaging among the affluent classes, who may be persuaded to send an imbecile or weak-minded child to a school for training or education, but will recoil from committing him to a licensed mad-house for detention or treatment."

At the recommendation of the Board of Lunacy, the Parliamentary grant of 4s. a week has been allowed to idiots or imbeciles sent to a training-school, such as Larbert or Baldovan, just as to a lunatic asylum; but the Board of Lunacy have required that these children should be certified as of unsound mind by two medical persons, which is equivalent to a certificate of insanity.

It strikes us that it would have suited all purposes to get them certified as idiots. The Scottish Lunacy Board appear to hold that the phrase "of unsound mind" includes all the other definitions, insane, lunatic, idiot, and even imbecile. The term, new to Scottish law, came from England, but it threatens to assume a dangerously vague signification north of the Tweed. Giving a new meaning to the words of the laws is very like making new laws.

By the present laws, to imprison idiots in a lunatic asylum is made too easy: to keep them in a training-school is made too difficult; but to have the same forms of detention for two such different measures would give a false air to our whole method of training and treatment.

To sum up in the words of the Charity Organisation Society who carefully examined the question—"In Scotland there is the same mixing together of lunatics and idiots, to the serious injury of both, and the same absence of any legal provision for training juvenile idiots and imbeciles, all which has arisen from the laws having been passed when the

essential differences between lunatics and idiots were not understood or acknowledged."

True Basis of Legislation for Idiots.

The true basis of legislation for idiots and imbeciles seems to me to treat them as children, not as mad persons ; and in this way all the difficulties connected with their detention and care could be met without the danger of exposing them to any unnecessary rigour or hardships, or needlessly alarming or wounding the susceptibilities of their parents, by forms too rigid and severe. As long as the age of pupillarity lasted, they might be sent by their parents to training-schools, the teacher standing by common law in *loco parentis*. No other forms would be needed, nor would I be disposed to interfere so much with the powers of parents as to enforce such children being boarded out into a training-school ; but it should be made obligatory on parochial boards to send pauper children, who, from imbecility or idiocy, are unfit to be educated at an ordinary school to institutions for the education of backward children, unless the children were clearly uneducable. Imbecile or idiotic children left under guardians or trustees should be sent to a training-school, if the annual income for their behoof were of sufficient value to defray the lowest charge at which they could be admitted.

It seems also reasonable to forbid all imbecile or idiotic children being sent to lunatic asylums, unless insanity of a dangerous or destructive character had supervened upon the original malady, and when such superadded insanity had subsided they ought to be discharged from the lunatic asylum, nor be allowed to be detained upon the ground of the original idiocy or imbecility alone. No idiot or imbecile should be confined in a lunatic asylum unless dangerous to the community or to himself, or manifesting habits grossly repugnant to decency.

The difficulty of detention evidently commences when childhood is over, and I have been repeatedly asked how it could be met. Without professing any knowledge of law, or asking any more for my opinion than that it should be listened to for a moment, it seems to me that a cheap and easy form of cognition would suit all cases. A parent or guardian might be allowed to send an idiot or imbecile, if a girl at the age of twelve years, or if a boy at the age of fourteen years, to a training-school, or continue them in the training-school if already there, by getting them declared imbecile or idiotic by the sheriff or his substitutes on the certificate of two medical persons, or one medical and one legal person, and thus extending the period of pupillarity up to twenty-one. After arriving at the age of twenty-one the powers given to a parent over an imbecile child might be given to the parent for life, or if the subject were only imbecile or simple-minded, he might be treated as a minor for life, or until recovery.

Imbecile women entitled to property should not be allowed to convey away such property to men who might be willing to marry them; but it does not seem necessary to forbid men from marrying them if the dowry did not go with the bride. Here the principle of *caveat petens* would apply. Idiots above twenty-one, certified by two medical persons, might be sent to a custodial asylum on a sheriff's warrant; if only imbecile or weak-minded it would not be necessary to send them to such an institution unless they were certified to have habits dangerous to the community, or very repugnant to decency. No idiot or imbecile beyond the age of twenty-one should be kept in a training-school, unless he were improving in his education or specially useful in teaching and tending others, and had no qualities which should render his residence there objectionable or dangerous to the younger inmates, and this should be certified by the medical superintendent or

attending physician. It seems advisable that these certified imbeciles or idiots should at any time be discharged on the request of their parents or guardians if the medical superintendent could certify that they were not dangerous to the community. Imbeciles or harmless idiots above twenty-one might be retained in the ordinary wards of poorhouses, under the certificates that they were minors or children for life, if admission to a custodial asylum were not available, and the ordinary visits of the parochial delegates and visiting officers would be sufficient for inspection ; but the training-schools and custodial asylums should be visited by the Commissioners in Lunacy, though the forms and returns required should be simple in form, expressly designed for idiots and imbeciles, and moderate in number. In venturing to put forth these suggestions, it is hoped that it will not be forgotten that each forms part of a whole scheme. It is assumed that a custodial asylum should be erected for idiots at the national expense, as recommended in the Directors' Report of the Larbert Institution for 1876. Dr. Arthur Mitchell, Commissioner in Lunacy, who is well acquainted both with the general subject of idiocy and the state of idiots in Scotland, in a paper on *The Care and Treatment of the Insane Poor*, thus observes :—" Do we not also need training institutions for young imbeciles, and asylums for the care of the young who are degradedly idiotic ? And should not these look for their origin and support to some surer source than the voluntary contributions of the charitable ?"

I can see no advantage in associating harmless lunatics with idiots or imbeciles. In the first place, it is very difficult to make out what a harmless lunatic is. Many of the outrages in an asylum are done by patients supposed to have been harmless. In the concluding stages of dementia or general paralysis they may be fairly called harmless, but such cases should not be removed from ordinary asylums for the insane ;

even taking the most favourable specimen of the harmless lunatic, it is difficult to see what either he or the idiot could gain by being associated together. The boarding-out system seems, as far as it goes, to do well for those harmless lunatics for whom the confinement of an asylum seems too rigid.

The Provisions for Idiots in Ireland.

In reference to Ireland, Mr. Jonathan Pim writes, "The provisions for the relief of idiots and imbeciles when I read my paper before the Statistical Society in 1864, were simply that they might be confined in lunatic asylums as being insane, or in prison as criminals, or in workhouses as paupers ; and no change has taken place since, except the establishment, about eight years ago, of the Stewart Asylum, in which there are at present forty-three inmates. I need not point out how utterly insufficient this is to meet the wants of the case."

New Law in Saxony.

"The kingdom of Saxony," writes Dr. Kind, "was the first State in Germany to erect an institution for idiots ; and in the new Education Bill of 1873, it has been the first to make the instruction of the weak-minded obligatory. Section 4 provides that neglected children, those wanting in intellect, weak-minded, and fatuous (imbeciles and idiots), are to be brought up in the public or private institutions provided for that purpose, if sufficient provision be not otherwise made by those whose duty it is to attend to it. No report has yet been published of the working of this law."

Laws in the United States.

I have taken the liberty of extracting a passage from the valuable *Notes of a Visit to American Institutions for Idiots and Imbeciles*, by G. E. Shuttleworth, B.A., M.D., Medical

Superintendent, Royal Albert Asylum, Lancaster, and if Dr. Shuttleworth would give his observations to the world in a more extended form, they would be much appreciated by all interested in the subject.

“ From this account it will be seen that in the States there are no institutions for idiots supported by voluntary contributions independently of aid from public funds. The incorporated institutions recognise indeed the charitable element in their constitution, but practically rely for their chief support upon State grants made to them conditionally upon their receiving gratuitously a certain number of patients nominated by the state authorities, and called state beneficiaries. The state institutions, on the other hand, have been founded by the state legislatures primarily for such state beneficiaries, but receive in addition children of the non-indigent class, on the payment by their friends of the bare cost of maintenance and instruction. In the Western Institutions, however, no charge is made, even for the latter class, in the case of children of citizens of the state ; and in the state institutions generally, there is no special accommodation for payment cases. In the Pennsylvania, Massachusetts, and Connecticut Schools, besides low-payment cases, some few of a higher rate (*i.e.* up to 500 dollars per annum) are received, and some little distinction of rooms is made. At the Pennsylvania Training-School profits derived from the higher payment cases, together with benevolent contributions, go to form a fund designed for establishing a custodial branch of the institution, to be located on an adjoining farm.

“The state institutions for idiots, being established like those for the blind, and the deaf and dumb, as recognised portions of the public educational machinery, are primarily intended for the reception of *educable* cases. The bye-laws of the New York State Idiot Asylum—(and this may be taken as a type of the other state institutions)—set forth that ‘The design

and objects of the asylum, as established by the action of the legislature, are not of a custodial character, but to furnish the means of education to that portion of the youth of the state not provided for in any of its other educational institutions.' 'Children between the ages of seven and fourteen, who are idiotic, or so deficient in intelligence as to be incapable of being educated at any ordinary school, and who are not epileptic, insane, or greatly deformed,' and whose physical health is such as not to interfere materially with their attending school, are consequently the subjects received into these institutions. The period of training varies, according to the age of the patients when admitted, from five to seven or even ten years. Great care is exercised in selecting for admission such cases as, from the description given of them, appear teachable, and a probationary period is invariably imposed. Reception on trial for *one month* is usually specified in the regulations, but in practice the more ordinary term of probation is *one year*; patients of proved incapacity for training, or unsuitable for institution life on account of epilepsy, or other grave physical disorder, being then returned to their friends. At the Connecticut, Kentucky, and Pennsylvania Institutions, however, epileptics are not rigidly excluded; indeed, in the last-named institution, about 10 per cent of cases are epileptics, mostly of a mild type. The effect of careful selection, and of the weeding out of bad cases, is, that in the state institutions generally the physical and mental condition of the inmates presents a higher average than that seen in British institutions, and consequently the death-rate is lower, and the standard of scholastic education higher. The class of 'feeble-minded children' would indeed appear to preponderate over that of the pure idiot in the American institutions."

CHAPTER XX.

WOLF BOYS.

An Inquiry into some Accounts of Children being fostered by Wild Beasts.

Quis credat pueris non nocuisse feram !
Non nocuisse parum est ; prodest quoque. — OVID.

It has been a question for curious speculation since man began to reflect on the origin of knowledge and the nature of his own faculties, what would be the character of a human being growing up without any intercourse with his kind, and having no ideas and no knowledge save those derived by his own unassisted intellect from his observations of the external world. Man's acquired knowledge being evidently the combined product of his own innate capacities, tastes, and sympathies, and the suggestions and customs resulting from his contact with other beings, it is only by a very difficult and somewhat doubtful process of analysis that philosophers have been able to distinguish what is innate and what is acquired ; and, as every one knows, great discussions have taken place as to the line of demarcation between those ideas, which are the result of education and those supposed to be of spontaneous growth. The experiment said by Herodotus¹ to have been performed by King Psammitichus is one likely enough to have been made by an eastern prince addicted to those speculations on the origin of ideas which so naturally

¹ Herodotus, *Euterpe*, cap. ii., compare the remarks of Renan on this passage. *De l'Origine du Langage* : Paris, 1858, p. 30.

present themselves to human curiosity. In order, as the priests of Memphis told the great father of history, to decide the important question :—Which was the most ancient of nations ?—the king gave two newborn children to a shepherd to educate. They were nursed by goats and separated from all human beings. The first sound they uttered was *βεινδς*, and this on inquiry being found to be the Phrygian for bread, the Egyptians admitted ever after that the Phrygians were of more antiquity than themselves.

It is said that a similar experiment was repeated by the philosophical Emperor Frederick II., but, as M. Renan tells us, by a refinement of delicacy the chronicler makes the two little creatures to die, because there was no one to sing them to sleep. According to Lindsay of Pitscottie, James IV. made the islet of Inchkeith the scene of another attempt of the same kind. "In order to discover, if possible, what was the natural and original language of the human race, he sent two infants, under the charge of a dumb woman, to reside there, and that there might be no occasion for any intercourse with others, caused them to be well provided with all the necessities which their situation might require, till the children should arrive at maturity."¹ The result of the experiment is not recorded. Lindsay speaks only of a vague report remaining in his time. "Some say that they spoke good Hebrew, but as to myself, I know not but by the author's report." According to Professor Max Müller a similar experiment was tried by one of the Mogul emperors of India.

Failing these rude experiments, which do not appear to have gained any satisfactory results, the curiosity of the learned has been directed to children found straying in the woods, deserted by their parents, and feeding like wild animals. One of the most celebrated of these creatures was a

¹ See *Chambers's Gazetteer of Scotland*, Edinburgh, 1833, article "Inchkeith."

girl caught at Soigny, near Châlons, in 1731, who afterwards went by the name of Mademoiselle Leblanc. When found she was mute, but after learning to speak she was able to give some account of her previous condition. She was very expert in climbing and swimming, and was said to have lived upon small animals and fish which she caught. She long retained a taste for sucking blood and eating raw flesh.

As late as 1798, a boy about eleven or twelve years of age was seen in the woods of Caune, in the department of Aveyron, in France, seeking for acorns and roots. He was caught by three sportsmen, and finally brought to Paris, where his education was undertaken by M. Itard,¹ Physician of the Deaf and Dumb Institution there. The result proved the correctness of Pinel's diagnosis that the boy was an idiot. This was also the case with Peter, "the wild boy," who was caught in the woods in Hanover in 1724. Blumenbach,² who investigated this case, says that Peter when found had still a rag of a white shirt tied to his neck. His legs above the knee were white, showing that he had not long before been wearing trousers, but no stockings or shoes. He was believed to have been the idiot son of a man called Krüger, thrust out of doors by a stepmother. Peter was brought to England to be placed under the care of Arbuthnot. His peculiarities have been described by Swift and Monboddo.

A still more curious subject of inquiry is afforded by

¹ "An Historical Account of the Discovery and Education of a Savage Man, or of the first developments, physical and moral, of the young Savage caught in the Woods near Aveyron, in the year 1798," by E. M. Itard, etc. London, 1802. In reading this pamphlet, plainly the work of a superior mind, one cannot fail to be struck with the subtlety of the analysis of the sensory and mental powers of this "simple child of nature," as M. Itard believed him to be, and the sagacity of the means used to educate his intelligence. The skilful preceptor overrated the mental capabilities of his pupil; but he has laid down a suggestive and valuable method of education, which has been of great use in the training of idiots.

² See the *Anthropological Treatises* of J. F. Blumenbach, translated by Thomas Bendyshe.

stories of children, deserted by their parents, being fed and guarded by wild beasts. Everyone knows about Romulus and Remus being suckled by a she-wolf, which some of the ancient writers have gravely narrated as if worthy of belief.¹ According to Apollodorus, the beautiful huntress Atalanta was exposed when a child, and suckled by a she-bear.

Herodotus² mentions that Cyrus was exposed when an infant by his grandfather, Astyages, and that his parents gave out that the child had been nourished by a bitch. This, he thought, arose from the woman who preserved Cyrus being called *σπαρῶ*, which meant a bitch in the Median tongue.

The best authenticated story of this kind is given by Procopius.³ During the Gothic war a woman in Picenum, having been either carried away or killed, her new-born child was left deserted. The infant was cared for and nursed by a she-goat. After the alarm had passed away, the neighbours returned and found the child, whom they named *Ægisthus*, after its foster parent. Procopius says he himself saw the child, and that those with him teased it to make it cry, when the goat, which had been a little distance off, came running up and stood over the child to protect it.

In modern times some writers have given accounts of children being fostered by wild beasts, not from the voice of tradition, but from the reports of direct observation. In General Sleeman's work upon Oude⁴ there is a collection of cases of boys who were found in the woods in company with wolves, and who were believed to have been fed and taken care of by these ravenous beasts. The stories are written in

¹ See, for example, *Justinus Historiarum Philippicarum*, Lib. xliii., cap. i., *Sed Fortuna origini Romanæ prospiciens pueros lupæ alendos obtulit*; *quæ amissis catulis, distenta ubera exinanire cupiens nutricem se infantibus præbuit*.

² Herodotus, *Clio* i. cap. 122.

³ *De Bello Gothico*, Lib. ii. cap. 16.

⁴ *A Journey through the Kingdom of Oude in 1849-50*, by Major-General Sir W. H. Sleeman, K.C.B., resident at the Court of Lucknow. London, 1853. Vol. i. pp. 208-222.

a lively and natural manner, and reproduce the style and tone of thought of the Hindustani narrators.

The General cites numerous witnesses, some of them European officers. I wrote to Dr. Stevenson, who is repeatedly mentioned in Sleeman's work, and who was long Residency Surgeon at Lucknow, and is now residing at Crieff. This gentleman never saw a case of a child carried off by a wolf who escaped save one, who was rescued after its scalp was torn off. He has seen the "wild man of the woods," mentioned by Sleeman, who says of him, "That he was found as a wild boy in the forests there can be no doubt; but I do not feel at all sure that he ever lived with wolves." Of this man, who lived in the menagerie of the King of Oude, Dr. Stevenson writes—"My most abiding impression of him is his irritability when approached by strangers, and his chattering more like a monkey than a man."

In a letter from the Rev. Mr. Erhardt to Mr. Ball the following passage occurs:—"Neither of the above are new cases, however. At the Lucknow mad-house there was an elderly fellow, only four years ago, and may be alive now, who had been dug out of a wolves' den by a European doctor—when, I forget, but it must be a good number of years ago."

It ought, however, to be borne in mind that General Sleeman travelled about the whole of Oude, and saw many wonderful things, nor is there any doubt of his good faith or desire to obtain correct information.

The description of the first of his cases is given in so graphic a manner that I venture to quote it without abridgment:—¹

"There is now at Sultanpoor a boy who was found alive in a wolf's den, near Chandour, about ten miles from Sultanpoor, about two years and a half ago. A trooper sent by the native

¹ This is quoted by Professor Max Müller, and may refer to Dr. Stevenson's old friend. No child was ever dug out by an European doctor from a wolf's den.

Governor of the district to Chandour, to demand payment of some revenue, was passing along the bank of the river near Chandour about noon, when he saw a large female wolf leave her den, followed by three whelps and a little boy. The boy went on all fours, and seemed to be on the best possible terms with the old dam and the three whelps, and the mother seemed to guard all four with equal care. They all went down to the river and drank without perceiving the trooper, who sat upon his horse watching them. As soon as they were about to turn back, the trooper pushed on to cut off and secure the boy ; but he ran as fast as the whelps could, and kept up with the old one. The ground was uneven, and the trooper's horse could not overtake them. They all entered the den, and the trooper assembled some people from Chandour with pickaxes, and dug into the den. When they had dug in about six or eight feet the old wolf bolted with her three whelps and the boy. The trooper mounted and pursued, followed by the fleetest young men of the party, and as the ground over which they had to fly was more even, he headed them, and turned the whelps and boy back upon the men on foot, who secured the boy, and let the old dam and her three cubs go on their way.

"They took the boy to the village, but had to tie him, for he was very restive, and struggled hard to rush into every hole or den they came near. They tried to make him speak, but got nothing from him but an angry growl or snarl. He was kept for several days at the village, and a large crowd assembled every day to see him. When a grown-up person came near him he became alarmed, and tried to steal away, but when a child came near him he rushed at it, with a fierce snarl like that of a dog, and tried to bite it. When any cooked meat was put before him he rejected it in disgust ; but when any raw meat was offered he seized it with avidity, put it on the ground under his paws like a dog, and ate it

with evident pleasure. He would not let any one come near him while he was eating, but he made no objections to a dog coming and sharing his food with him. The trooper remained with him four or five days, and then returned to the Governor leaving the boy in charge of the Rajah of Hassunpoor. He related all that he had seen, and the boy was soon after sent to the European officer commanding the First Regiment of Oude Local Infantry at Sultanpoor, Captain Nicholetts, by order of the Rajah of Hassunpoor, who was at Chandour, and saw the boy when the trooper first brought him to that village. This account is taken from the Rajah's own report of what had taken place.

"Captain Nicholetts made him over to the charge of his servants, who take great care of him, but can never get him to speak a word. He is very inoffensive, except when teased, Captain Nicholetts says, and will then growl surlily at the person who teases him. He had come to eat anything that is thrown to him, but always prefers raw flesh, which he devours most greedily. He will drink a whole pitcher of butter milk when put before him without seeming to draw breath. He can never be induced to keep on any kind of clothing, even in the coldest weather. A quilt stuffed with cotton was given to him when it became very cold this season, but he tore it to pieces, and ate a portion of it, cotton and all, with his bread every day. He is very fond of bones, particularly uncooked ones, which he masticates apparently with as much ease as meat. He has eaten half a lamb at a time without any apparent effort, and is very fond of taking up earth and small stones and eating them. His features are coarse, and his countenance repulsive, and he is very filthy in his habits. He continues to be fond of dogs and jackals, and other small fourfooted animals that come near him, and always allows them to feed with him if he happens to be eating when they approach.

“ Captain Nicholetts, in letters dated the 14th and 19th of September 1850, told me that the boy died in the latter end of August, and that he was never known to laugh or smile. He understood little of what was said to him, and seemed to take no notice of what was going on around him. He formed no attachment to any one, nor did he seem to care for any one. He never played with any of the children around him, or seemed anxious to do so. When not hungry he used to sit petting and stroking a pariah or vagrant dog, which he used to permit to feed out of the same dish with him. A short time before his death, Captain Nicholetts shot this dog, as he used to eat the greater part of the food given to the boy, who seemed in consequence to be getting thin. The boy did not seem in the least to care for the death of the dog. The parents recognised the boy when he was first found, Captain Nicholetts believes, but, when they found him to be so stupid and insensible, they left him to subsist upon charity. They have now left Hassunpoor, and the age of the boy, when carried off, cannot be ascertained, but he was to all appearance about nine or ten years of age when found, and he lived about three years afterwards. He used signs when he wanted anything, and very few of them except when hungry, and he then pointed to his mouth. When his food was placed at some distance from him he would run to it on all fours like any fourfooted animal, but at other times he would walk upright occasionally. He shunned human beings of all kinds, and would never willingly remain near one. To cold, heat, and rain, he appeared to be indifferent, and he seemed to care for nothing but eating. He was very quiet, and required no kind of restraint after being brought to Captain Nicholetts. He had lived with Captain Nicholetts’ servants about two years, and was never heard to speak till within a few minutes of his death, when he put his hands to his head, and said, ‘ It ached,’ and asked for water ; he drank it, and died.”

Mr. V. Ball, of the Geological Survey of India, has laid before the Asiatic Society of Bengal some *Notes on Children found living with wolves in the North West Province of Oude*. An abstract of these notes appears in a recent number of the *Proceedings of the Society*.¹ I have not been, as yet, able to refer to Mr. Ball's paper. It appears that he refers to two cases about which the following description was copied into the *Edinburgh Ladies' Journal*, April 5th, 1873 :—

A Strange Story.—Children Nourished by Wolves—Romulus and Remus Redivivus.

The *Amherst Student* contains a letter from Professor J. H. Seelye, dated Allahabad, India, November 25, 1872, detailing a strange fact which came under his observation in his recent travels. The letter is as follows :—

“Not far from Agra, in Northern India, is a mission station of the Church Missionary Society, connected with which is an orphanage with several hundred children, now under the efficient care of the Rev. E. G. Erhardt. The region around is infested with wolves, by which every year numbers of children are carried off and devoured. But in two instances, at least, instead of being killed and eaten, the children have been kept alive and nourished with, if not by, these beasts. Whether the story of Romulus and Remus be a myth or not, this is an actual reality, for the children themselves have been captured from among the wolves, and brought to the orphanage above mentioned. They were both boys, and apparently of some seven or eight years of age when taken. They were found at different times, the last one in March of the present year. Some hunters, smoking wolves out of a cave, were startled when the wolves

¹ See *Journal of the Asiatic Society, Proceedings for June 1873*, quoted by Professor Max Müller.

appeared, by the appearance among them of a creature looking strangely human, but running rapidly on all fours like the wolves, though not so rapidly as they. He was caught with difficulty, and there was no mistaking that he was a child of human parentage, but with the habits and actions and appetites of a wild beast. The hunters brought him to the orphanage, where he was received and cared for. Though his physical form and features were sufficient to show that he was a Hindoo child ; there was no other indication about him of anything human. In all other respects he was, in the language of Mr. Erhardt, 'a perfect animal.' He had no speech, but a whine. He would wear no clothes, tearing from him everything of the sort whenever put on. He would eat nothing but raw flesh, and lapped water with his tongue. When left to himself he would hide in some dark spot during the day, from which he would come out at night, and prowl about the inclosure, picking up bones, if any were to be found, and ravenously gnawing them. It at first seemed impossible for him to walk erect, but after much difficulty he was taught to do so, and also to use a fork and spoon, and to drink like a human being. Though treated with the utmost care, and with great patience and kindness, by the Christian hands and hearts which received him, he pined away and died after he had been in the orphanage a little over four months. In all this time he could not be made to utter a word ; he was never seen to smile, nor show any signs of joy, or shame, or gratitude. But Mr. Erhardt, who gave me this account, assured me that his face looked more intelligent than the average of Hindoo children, and that his colour and features indicated that his parentage must have been in a family of high caste. The other boy I myself saw a few days since at the orphanage, where he was brought about six years ago, having been then captured, much as was the first-mentioned boy, and having shown precisely the same habits

as belonged to him. He has not yet spoken a word, but has exchanged the whine, which was at first his only utterance, for sounds expressive of pleasure, and apparently also of gratitude. He no longer prefers raw flesh for food, but eats bread and fruits with ravenous avidity. He walks erect, but with a strangely awkward gait, throwing out his hands with every step. His hands are perfectly formed, but he uses them awkwardly. A piece of bread tossed to him from a little distance, which he was eager to get, he could not catch, but let it fall clumsily to the ground. He wears clothes, to which he was at first as averse as the other boy. His forehead is low, but his face would hardly be called dull, and certainly not idiotic. His eyes have a wild and restless, but not an inquiring look. His jaws are not protruding, and his teeth are well formed and thoroughly human. On his left cheek are scars bearing plainly the marks of teeth, where he must have been fearfully bitten. He has been taught to do some kinds of work, but not faithfully. He seems to have lost all desire to escape; he mingles freely with the other children, among whom he has his favourites. When the boy first mentioned was brought to the orphanage, this one was made to understand that he must teach the other how to eat, and drink, and walk, and much of the improvement of the younger one in these respects seemed due to the efforts of the older one."

By the kind assistance of a clergyman, a friend of mine, I have had a letter sent to the Agra Mission, and hope soon to be able to give the results. Dr. J. Murray Mitchell, of the Free Church Foreign Mission, thinking the subject worthy of investigation, has already written to some Indian Missionaries—one of them a Medical Missionary—to get, if possible, at ascertained facts bearing on the point. As no one is better able to carry on an inquiry of this kind, it is hoped that some well-sifted information may shortly be obtained.

The following paragraph appeared in the *Edinburgh Courant*, 14th August 1873 :—

“ A WOLF BOY.—A novelty, in the shape of a ‘ wolf boy,’ has just arrived at Lucknow, and has been handed over to Dr. Whishaw to undergo a process of taming in the lunatic asylum. The boy, who is now about twelve years of age, was, it is said, carried off by wolves when an infant, and has remained with them until caught a short time since and recognised by his parents. At first he walked on all fours, now he walks on his two feet only ; he has long hair on the head. The body is much scarred ; he cannot speak or understand a single word, and his parents could not keep him because he attacked and tried to devour them at night. He tears raw meat to pieces with his teeth, and eats it as ravenously as any wolf would ; he bites and snaps at any one who attempts to touch him.”—*Pioneer*.

On reading this, I lost no time in writing to Dr. Whishaw, begging him to give some information about the truth of this case, which, for the first time, seemed to have come under the observation of one of our own profession ; and I am sorry in the interest of the marvellous that his reply seems to throw discredit upon the whole matter.

Dr. Whishaw’s letter is dated Lucknow, January 19th, 1874. He writes :—

“The boy is fourteen, and an impostor ; he was made up to get money under false pretences. I found him out. He was certified to be dumb ; but after he had been ten days with me he talked very well, argued, and described his life in the wolves’ den. He said that the wolves resided about half a mile from the village in which his relations lived, but yet, that for five years he was not discovered, nor had he the curiosity to go and see what was going on in his paternal abode.

“ He showed me the way in which he used to play with

the young wolves. When the papa and mamma went out in search of food for the family he usually remained behind. Sometimes, however, he was allowed to go with them ; and, if one could judge of the pace he could go by the specimen of it I made him show the visitors of the asylum, the wolves would have had but poor sport and a bad dinner on the day this gentleman joined in their wild sports. He knew his own name and those of his brothers. He had no callosities on his knees. He was a fearful liar. When he saw I had found him out to be an impostor he wept.

"I believe never in this world has there been an instance of a child being brought up by wolves, and I cannot understand how anybody can believe in such a thing. It is a common fable in all Indo-European languages.

"Other wolves occasionally visited the hosts of my friend, but they never even proposed to have him for dinner—I suppose on the principle of 'honour among thieves.' He also taught us the language he used during his five years' stay with the wolves. When he was offered a bone he ran at it on all fours with a ludicrous imitation of a dog's bark. He said that children's flesh was a great delicacy, which he frequently enjoyed.

"The majority of wolf-boys are idiots, taken by their parents and left near some distant police station.

"I am, dear Sir,

"Yours very truly,

"JOHN WHISHAW."

While in India I have often conversed with Hindustanis on most subjects, and am inclined to think that the idea of a child being brought up by a wolf is quite strange to those living in the Punjaub, and the country between the Sutlej and the Jumna. I never lived in Oude or the Agra districts, whence these stories seem principally to have come. In like manner I have turned over a great many books of natural

history. They all speak of wolves and other wild beasts killing children, but never a word of bringing them up.

The inherent improbability of a wolf not only sparing but fostering a child whom it has carried off to devour, and of a child becoming reconciled to dwell in a wolf's den, do not require to be pointed out; but, at the same time, it does not appear that the thing is absolutely impossible, or so improbable that we ought to reject the testimony without considering its weight. If looked upon as a possible event it would likely take place in this way. A wolf who had lost her cubs, and whose maternal instinct was still excited, might, under certain circumstances, transfer it to a child. This, of course, would be a very rare event, but might now and then occur amongst a large number of instances where the children were devoured.

It must be remembered that every year in India great numbers of children are killed by wolves. In 1871 there died from snake-bites and wild beasts in the Presidencies of Bengal and Madras, 16,967 persons.¹ There is no return from the Bombay Presidency, but it may be said, in round numbers, that the deaths from such causes in British India cannot be less than 20,000 a year. Considerably more than half of these deaths are owing to snake bites; but of those who fall victims to wild beasts by far the largest number are killed by wolves, and these for the most part are children carried off from villages or hamlets near the jungles. In Oude about a thousand people perish every year from snake bites and wild beasts. In 1871 the number was as high as 1184, and the statistical returns are yet imperfect. Probably the number of children carried off by wolves in British India does not fall under 5000 or 6000 a year, and of these from 300 to 400 occur in Oude.

¹ These statistics are taken from the Annual Reports of the Sanitary Commissioner with the Government of India.

The wolf brings pieces of flesh to her cubs, which she hashes down for their use, and it will not be denied that a child could live upon such food. The wolf, though a very ferocious beast, can be tamed and become attached to man. He is very nearly allied to the dog, with whom he can breed as was known to the ancients¹ and proved by the experiments of Buffon and Frederick Cuvier. There are instances of domestic animals adopting the young of other species when deprived of their own; of bitches nursing the leveret or the cubs of the otter, and of the cat nursing the young of the dog and even of the rabbit, which we occasionally read of in the newspapers. An instance is on record where a male fox struck up a friendship with a lamb, "and the pair were seen daily, seldom very far from one another."

General Sleeman observes, "I should doubt whether any boy who had been many years with wolves up to the age of eight or ten could ever attain the average intellect of man." This seems a fair inference, if the cases which he describes be real ones. It would certainly be one of the most remarkable facts in the nature of the human mind that, by living for years with wild beasts, by imitating their habits and yielding to the suggestions of their brutal natures, the growth of the intellect should be permanently arrested at the early age of eight or ten, and that a condition of idiocy should, as it were, be implanted by the boys sharing the wild life of a beast of prey, and this without any disease either of the sensory nerves or of the brain. This is a second improbability more startling than the first, and is opposed to what is known of the educability of the idiotic, and of the deaf and dumb.

It is clear that these Hindustani boys were actually idiots, whatever the cause of the idiocy may have been. It is not said that any of them were deaf, but they were all mutes. Some of them snarled or growled like wolves or dogs; one of them was

¹ See *Diodorus Siculus*, Lib. i. cap. 88.

never heard to speak till within a few minutes of his death, when he put his hands to his head, and said, "It ached," and asked for some water. This reminds one of a microcephalous idiot, described by Vogt, who, all his life a mute, spoke a few words during his last illness, and asked for something to drink (*trinkte habe*), named a few articles of food, and said that his head ached (*Koppe duhte Weh*).

Two of these boys could not be made to wear clothes, and one could only be got to do so with difficulty. It is to be remembered that Oude is a country where the cold is never very severe, and where many boys go almost naked. Some traces of their wolfish training are noticed. In one the front of his knees and elbows had become hardened, from going on all fours with the wolves. One case at the Agra Mission ran rapidly on all fours. Another, mentioned by Sleeman, ran nearly as fast as the wolf whelps; a third ran quite as fast as the wolf; and of a fourth it is actually said he could run so fast on all fours that no one could overtake him.

They all ate raw meat, and preferred it to other food. One fed on carrion, and frogs which the boys of the village caught and brought to him. A Cashmiri, who took charge of one of those creatures, spent fifteen days in getting him to eat rice and other grain foods. One boy, when drinking, dipped his face in the water and sucked it up; another is said to have lapped water like a dog. Two of them are said to have had a very offensive smell.

The number of cases we have to deal with are nine. Of these Dr. Whishaw's one is of course out of the question. He was neither fostered by wolves, nor was he an idiot, and one of Sleeman's cases is stated to have been simply rescued from wolves. This leaves us seven, and of these one was forced out of a wolf's den by hunters smoking it; another was dug out of a wolf's den by a trooper (who had seen him run into it), with the help of some villagers; a third was seen in company

with two wolf whelps by two native soldiers watching for wild boars ; a fourth was seen by a shepherd, trotting on all fours by the side of a wolf ; and a fifth was seen drinking along with two wolf whelps by a trooper and another man. The manner of finding the other two is not given in detail. In no case do these original witnesses appear to have been examined by the narrators. The question rests upon their credibility, for no one would probably deny that the children had been found straying in the woods, deserted by their parents, and if we reject the testimony of the original finders, we must receive the explanation of Dr. Whishaw, that these were simply idiot boys, whom their parents had turned adrift, probably at a distance from their homes, and who had lived some time in the jungle. The statements by General Sleeman that several of these children, after being taken from wolves, were recognised by one or other of their parents, who were widows or poor people, seem to me a very suspicious confirmation of the stories. Hindustanis, especially poor widows, are very ready to claim foundling boys in India, under the hope that, brought up as their own children, they will provide for their assumed parents when they are old. I could give a striking example of this from my own experience ; and it is noteworthy that those who obtained the wolf-children under the statement that they had been taken from them by wolves, all abandoned them when they found that they were idiots. The Hindus would be fain to get rid of an idiot child, because he would be continually endangering the loss of caste to his parents, by eating forbidden food. One of my servants, a Chamar, lost his caste because his wife, who had gone mad, was seen to drink water from the hands of a Mussulman.

Amongst the details given by General Sleeman there are a few ridiculous amplifications. One boy masticated bones with as much ease as meat. Of another, the Rajah of Hassunpoor, Bundooa, said that he " had short hair over his body, but

after having eaten salt with his food like other human beings the hair by degrees disappeared." It seems to me still more questionable that one of these boys "could drink a whole pitcher of butter-milk without seeming to draw breath;" for, though wolves might possibly succeed in getting salt for their nurslings, they would have little chance in getting them any practice in drinking butter-milk.

The imagination of the Hindustani is plastic; he is fond of the marvellous, more disposed to believe anything not immediately concerning his private affairs than to go and examine it. He is not a rigid and strict observer, like educated Europeans living in these scientific and critical times. His notions of veracity are lax and easy. Though having nothing like the great experience and opportunities of General Sleeman, I could have collected during my residence in India as many stories of ghosts or sorcerers, and as well attested as these narrations of children being seen with wolves. When I commenced to write this paper the evidence on the one side and on the other seemed, as it were, to make the scales go up and down; but having applied my mind to the subject, I am disposed to think that the balance leans more to the one side than the other. We should not be, however, in too great a hurry to regard these stories as disproved. The subject seems still worthy of further inquiry, and I should be much gratified if any of my readers who have friends in India, or who may happen to go there, could procure me information bearing upon the question. They ought especially to examine into the original evidence—whether the children were actually seen or found with wolves? Whether the foundlings bear any marks of congenital idiocy, such as a saddle-shaped palate? or are subject to epileptic fits? or have heads in any way deformed? If such foundlings die, the examination of their brains might throw some light upon the matter.

This paper was completed when I heard of the article

entitled "Wild Men and Beast Children,"¹ by Mr. E. Burnet Tylor, and I am pleased to find that my own views are confirmed by the judgment of this thoughtful writer.

Mr. Tylor cites from Bernard Connor's *History of Poland*, a letter from the Dutch Ambassador to England, Monsieur de Cleverskerk, who was in Warsaw in 1661, where he saw a boy at a convent, who he was told had been caught sometime before at a bear-hunt. "The description he gives of him," says the learned writer, "comes to this, that the boy was a half brutal idiot, who ran on all fours to seize the bread which was given to him. Another account of this case," continues Mr. Tylor, "is given by Koenig, from *Hartknoch de Republicâ Polonicâ*."

He says that in the year 1661, two boys were found in company with several bears in the woods of Grodno.

"One of them escaped with the bears into a marsh; but the other was taken. This boy, assumed to be eight or nine years old, went on all fours, and ate greedily such things as bears love, such as raw flesh; apples, and honey. He was taken to the king at Warsaw, and baptized Joseph. With some difficulty he was taught to walk upright. He could not learn to speak Polish, but expressed himself with a bear-like growl (*murmure ursino*)."²

The king gave him to a chamberlain of Posnan called Peter Adam Opalinski, who employed him to cut wood and do simple work, "but he never lost his wildness, and would sometimes go off to the woods, where the bears never molested him," very likely because he had been brought up by one of their relations. Before passing these authorities as worthy of credit, it would be needful to examine the original testimony

¹ See *The Anthropological Review*, vol. i. No. 1. London, 1863.

² This is probably the boy mentioned by Leibnitz: "Car lorsqu'on presenta à Jean Casimir roi de Pologne un enfant sylvestre, pris parmi les ours, qui avait beaucoup de leurs manières, mais qui se fit enfin connaître pour animal raisonnable.—*Nouveaux Essais*, Liv. iii.

of those who were present at the capture of the boy, and these do not seem to be given. That a boy should be fostered by a bear seems more credible than that he should be fostered by a wolf. A bear is of much less savage temper, and is not a purely carnivorous animal. I know, for example, that the bear, which is sometimes still seen in the South of France, can often be approached with safety. There is a story told in Mr. Atkinson's *Travels in Siberia*¹ of two children, one four and the other six years of age, seen by their mother playing with a Siberian bear; one of them was feeding it with fruit, the other riding on its back. On the mother running up the bear quietly walked off. There is another story in Buffon's *Natural History*,² of a bear confined in a cage in Nancy, becoming fond of a Savoyard boy, and allowing him to come into the cage and sleep with him. It does not thus seem so incredible that a bear should become the companion of a deserted child, and that they should become attached to one another and be found together in the woods. The son of a missionary whom I knew at school had also a story of a Kaffir boy being carried off by the baboons, and kept several years by them amongst the rocks. He was at last caught, not being able to climb so well as the baboons, and was brought back to his parents. He said that the monkeys treated him with a certain distinction, and always allowed him to drink first. My informant averred that this story was perfectly true, and that it happened in his neighbourhood; so perhaps it is worth repeating.

It seems probable that the *Juvenis Ovinus Hibernus* of Linnæus (a young man found amongst wild sheep in Ireland), was a wandering and deserted idiot. He is said³ to have had

¹ Quoted in *Illustrated Natural History*, by J. G. Wood. "Mammalia," p. 394.

² See "Smellie's Translation," vol. vi. London; 1812.

³ Der irländische Knabe den Tulpius beschrieben, hatte eine flache Stirn, ein erhöhtes Hinterhaupt, eine weite blöckende Kehle, eine dicke an den Gaum gewachsene Zunge, eine starke einwärts gezogene Herzgrube, gerade wie es der

"a flat forehead, the head raised behind, a wide bellowing throat, and a thick tongue adherent to the gums." Unhappily there is no description of the "wild sheep."

For an account of other cases of a similar kind the most accessible reference is the paper of Mr. Tylor. The same explanation seems to do for them all, that idiots have occasionally been found straying in the woods, and that people accounted for their wildness and stupidity, their want of speech, and their abnormal sense of taste, by supposing that they had been brought up by or lived in the company of wild beasts.

The notion that the cruel wolf—the terror of mothers for so many ages—or the shaggy and formidable bear had sometimes spared the innocents whom it had snatched from the cradle, or found wandering in the fields on the borders of the old forests, would be a myth agreeable to the traditions of the nursery.

The following letter to the editor of the *Journal of Mental Science* appeared in the number for October 1874 :—

"Larbert, Stirlingshire, 1st Sept. 1874.

"Sir—I send two communications which have been made to me on the subject of boys fostered by wolves. The first is in reply to a letter sent to the Rev. Mr. Erhardt, about the two boys in the Secundra Orphanage, mentioned in my article 'On Children fostered by Wild Beasts' in the last number of the *Journal of Mental Science*. Mr. Erhardt states that what appeared in the papers from Mr. Seelye and others, were particulars furnished by himself. As to the question whether the boys had been turned adrift by their parents, he thinks such a thing as possible but not likely. He says that the last boy

vierfüssige Gang gehen musste. Das niederländische Mädchen, das noch aufrecht gang, und bei dem sich die weibliche Natur so weit erhalten hatte dass es sich mit einer Strohschürze deckte, hatte eine braune, rauhe, dicke Haut, ein langes und dickes Haar. Herder, Ideen zur Geschichte der Menschheit. Drittes Buch, kap vi.

was burnt out of a den together with wolves, and was such a complete animal that he must have been a long time with the beasts. His taste was that of a carnivorous animal—meat and bones—nothing else. The older boy eats now vegetables; formerly he did not. He still smells at his food before eating; the other boy knew only animal food by the smell. Everything else he dropped with the greatest unconcern. The older boy looks an idiot by the formation of his head; but the other (who died after being four months in the Orphanage) was the finest boy (I suppose physically) in the institution, his idiocy seemed only acquired. If he had only had time to find out his capacity, Mr. Erhardt has no doubt he might, in time, have improved more than the older one. The last few months the surviving boy has learned to speak several words, but he will never obtain full sense and power of speech. Mr. Erhardt does not know whether the elder boy had marks upon his knees when caught, but the younger one had none, 'though he could not stand properly on his legs. It looked as if they could not bear his weight, but he could run very fast on his hands and knees, so much so that our boys could hardly come up with him when he bolted one day.'

"The most noteworthy statement in Mr. Erhardt's letter is, that one of the boys was burned out of a wolf's den, but he does not say on what testimony this rests.

"Dr. J. Murray Mitchell has kindly sent me a sheet from the *Lucknow Witness* of June 19, 1874, in which there is the following letter about wolf boys. W. W. IRELAND."

"When the late Sir William Sleeman was Resident at the Court of Lucknow, he interested himself much in this matter, and evidently believed that wolves did occasionally carry off children to their dens, and, contrary to their natural instincts, rear instead of devouring them. The writer of these lines

whilst employed in the Oudh Frontier Police, received order from General (then Colonel) Sleeman to proceed from Sultanpore, Oudh, to Fyzabad, in order to secure a boy then said to have been seen in the latter place, who had been nourished by a wolf. On arrival at Fyzabad no trace of the 'wolf boy' could be found, the search having been rendered all the more difficult by the presence of immense multitudes assembled both at Fyzabad and Ajoodhyah on the occasion of a grand mela (fair).

"Whilst on his way back to Sultanpore, the writer heard that a 'wolf boy' was to be found in the vicinity of Sultanpore itself. Messengers were accordingly despatched to the locality indicated, and a boy was brought by them whom the villagers declared to have been reared by a wolf. The poor creature was about thirteen or fourteen years of age, could utter no articulated sounds, could not walk erect, in fact crawled on all-fours, and seemed totally deprived of intelligence; presenting, although perfectly harmless, a most repulsive appearance. Now and then he gave utterance to most uncouth and almost frightful cries. He was sent to Lucknow to Colonel Sleeman, and what subsequently became of him the writer cannot tell; but when the Oudh Durbar officials discovered what they considered to be a 'shauk' (desire) of the Resident, they hastened to produce several unfortunate idiots, positively declaring them to be 'wolf boys.' There is no doubt that the natives believe in the existence of these wolf-nourished creatures, and the story of Romulus and Remus would tend to show that the Roman shared in the same belief, nevertheless the writer must confess to total scepticism in this matter.

"First, how difficult it is to believe that an animal so ferocious in its habits should, by some strange and incomprehensible motive, be induced to spare the life of a child completely in its power. True it is that animals have been known to

nourish and rear the young of another species ; but then in most cases these animals were in a domesticated condition and plentifully supplied with food, whereas it is to satisfy the very cravings of hunger that, in the first instance, the wolf seizes upon an unguarded child and carries it off to its den for the purpose of feasting on it, when, suddenly changing its mind, it not only spares the child but nourishes and rears it !

“ The total disparity too between a child and its supposed gaunt foster-parents throws another difficulty in our way, whilst in the case alluded to of animals nourishing young of another species, it will generally, if not always be found, that some physical resemblance, however slight, exists between the nurse and its charge.

Secondly, although the writer has heard of frequent instances of ‘ wolf boys ’ having been found in Oudh villages, no instance has ever been cited to him of the discovery of a ‘ wolf girl ’ ! Surely it is too much to be asked to believe that wolves would be influenced by sex in the choice of subjects on whom to bestow their strange tenderness !

“ Is it not probably a true solution of the mystery which, for so many years previous to the annexation of Oudh, has enveloped the history of these unfortunate creatures, to suppose that they were simply idiots who, straying away from the place of their birth, wandered, driven by hunger from place to place in search of food ; their parents or friends, themselves perhaps poverty-stricken, not being over anxious to search for and bring back to their homes such burdens on their scanty means. It must be remembered that in the days when Oudh was under its own rulers, there existed no asylums in which to shelter idiots, and they roamed about in perfect liberty, supported by the liberality of the people.

“ And when we consider the great love all Orientals entertain for the marvellous, we need scarcely be astonished that

on seeing such an object as the one which was brought to the writer's house at Sultanpore (or, still worse, one possessing a savage instead of a harmless disposition) the ignorant villagers should have been tempted to believe that such an animal could only have been brought up by a wolf, that animal so much dreaded by themselves that they will scarcely pronounce its name, and to which they attach the superstitious idea that if killed in or near a village, that village will assuredly ere long be deserted?

"True it is that sometimes nature indulges in strange freaks, and supposing even that 'once upon a time' a wolf took pity on a child and nourished it, can it be supposed that such a circumstance would be of so frequent an occurrence as the villagers in Oudh would have one to believe?

"It will most probably be found on inquiry that since the annexation of Oudh no fresh instances of the existence of 'wolf boys' have been brought to notice, and if this is found to be a fact, it will go far to cast disbelief on the weird stories formerly so current in Oudh, and which, apparently, had no other foundation than the mere assertions of ignorant villagers, assertions which under the present rule would be subjected to the strictest scrutiny before being accepted as trustworthy.

O. P. A.

"Musoorie, 30th May 1874."

The original article, now reprinted, appeared in the *Journal of Mental Science* for July 1874, and the correspondence in the number for October 1874.

A paper appeared on the same subject in the *Academy*, November 7, 1874, signed Max Müller, of which the following is an extract:—"The question whether children have ever been suckled, reared, and educated by wolves is one of considerable importance in the treatment of ancient myths. There are, of course, many elements in mythology which are purely miraculous, such as the birth of Achilles, as well as

of Helen, and no comparative mythologist would trouble students of natural history with questions on the physical possibility of such events. But there are other ancient stories which, though incredible to us, are in themselves not impossible. Here it is absolutely necessary that the question of their physical possibility should be settled first, before we can place them in the category of the miraculous, and apply to them the proper tests for discovering mythical ingredients. Whether children, carried off by wolves, could be suckled and kept alive in a den for any length of time, is surely a question which students of natural history, and even practical sportsmen, might settle for us once for all, while the documentary evidence in favour of the existence of such wolf-children might exercise the ingenuity of some of our cleverest lawyers. When they have done their work, and not till then, the work of the comparative mythologist will begin. I therefore proceed to put together some of the best authenticated cases of wolf children, without, however, presuming myself to pronounce any opinion, either adverse or favourable."

The cases put together by Professor Max Müller are the same as those already mentioned in my article, which had not the good fortune to attract his notice. The only two additional crumbs of information furnished by the learned philologist have been cited in this reprint of my original paper.

CHAPTER XXI.

A LIST OF TRAINING-SCHOOLS FOR IDIOTS AND IMBECILES.

It is hoped that there are no omissions in the following list of Training Institutions for Idiots and Imbeciles. It has not been possible to bring the number of pupils down to the latest date, but it is taken from the last reports in the author's possession.

Any one who wishes to visit the Institutions for Idiots in Germany or Switzerland should take with him a copy of "Die Idioten Anstalten Deutschlands und der benachbarten deutschen, Länder," von Heinrich Laehr, Dr. med. Berlin 1874." This pamphlet, of thirty-three pages, has got a coloured map, with each place where there is a training-school underlined.

Dr. Laehr has also published a large work, "Die Heil- und Pflegeanstalten für Psychisch-Kranke in Deutschland, der Schweiz und den benachbarten deutschen, Länder," Berlin 1875. This book contains a list both of the asylums for the insane and of the institutions for idiots.

ENGLAND.

	Founded.	Number of Pupils
Bath Asylum	1846	—
Essex Hall, Colchester	1859	98
Earlswood, Surrey	1855	594
Star Cross, Exeter	1864	40
Royal Albert, Lancaster	1864	251
Normansfield	1867	94
Midland Counties Middle-Class Idiot Asylum, Birmingham. }	1869	20
Clapton	1874	335

Catherham and Leavesdon, founded in 1870, are for chronic harmless lunatics and imbeciles. There is a building in the grounds of the Warwick Counties Lunatic Asylum for idiots, but few have been as yet admitted.

SCOTLAND.

	Founded.	Number of Pupils.
Baldovan	1853	46
Scottish National, Larbert	1862	102 ¹
Columbia Lodge, near Edinburgh	1867	8

IRELAND.

Stewart Institution, formerly Lucan Spa	1869	43
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CANADA.

	Founded.	Number of Pupils.	How Supported.
London, Ontario	1872	46	State.
An Asylum for 200 idiots is being built near Toronto.			

AUSTRALIA, NEW SOUTH WALES.

	Founded.	Number of Pupils.	How Supported.
Newcastle	1872	132	Government.
In the Asylum there were still 46 demented males and 6 females in 1875.			

GERMANY.

IDIOT ASYLUMS IN NORTH GERMANY.

	Founded.	Number of Pupils.	How Supported.
Berlin	1820	38	Private.
Craschnitz	1860	133	Boarders and subscription.
Gladbach	1859	136	Private.
Hasserode	1861	16 girls	Public.
Kiel	1862	44	Private.
Kückenmühle	1863	89	Boarders and subscription. Commune gives £120 a year. Cost of board £22 a year.

¹ Now reduced to 84 by loss of adults.

	Founded.	Number of Pupils.	How Supported.
Langenhagen .	1862	228	Boarders and subscription, and a grant of £600 from Government.
Neinstedt .	1861	70	Boarders and subscription.
Potsdam .	1865	60	Private.
Rastenburg .	1865	32	Private, with a charter.
Riga .	1853	10	Private.
Schwerin .	1870	33	Private.
Schleswig .	1852	59	Private. Subsidy of £150 yearly from the State.
Schreiberhau .	1845	15	Private.

SAXONY.

	Founded.	Number of Pupils.	How Supported.
Dresden .		{ 6 Boarders 23 Day Scholars }	Private.
Dahlen .	1858	11	Private.
Hubertsburg .	1845	150	Public.
Möckern .	1847	41	Private.

SOUTH GERMANY.

BAVARIA.

	Founded.	Number of Pupils.	How Supported.
Ecksberg .	1852	138	Charitable.
Neuendettlesau .	1854	68 women	Private.
Polsingen .	1868	53	Private.

WURTEMBERG.

	Founded.	Number of Pupils.	How Supported.
Mariaberg .	1841	80	Government, boarders, and subscription.
Stetten .	1849	183	Private.

SMALLER STATES.

	Founded.	Number of Pupils.	How Supported.
Darmstadt . . .	1869	38	Private, under protection of <i>Princess Louise</i> .
Erkerode (Brunswick)	1868	64	Self-sustaining.
Schwerin . . .	1867	12	Founded by the Duke of Mecklenburg-Schwerin.

Two asylums have been founded for the care of epileptics alone.

	Founded.	Number of Patients.	How Supported.
Bielefeld (Westphalia)	1867	72	Private.
Erkerode (Brunswick)	1875	24	Private.

FRANCE.

	Founded.	Number of Pupils.	How Supported.
Bicêtre . . .	1842	20 boys	State.
Salpêtrière . .	1842	50 girls	State.
Clermont . . .	1842	15	State.
(Oise)			
Gentilly, } near Paris }	—	60	Private.

The general Council of the Seine has lately decided to make a colony for the education of idiots or *enfants arriérés*. The pupils are to be taught farm labour. It is to be under the superintendence of a chief physician, with a medical assistant, and an *interne en médecine*.

NETHERLANDS.

	Founded.	Number of Pupils.
La Hague . . .	1858	Indoor 42. Outdoor 13.

BELGIUM.

In the Hospital Guislain, which has 470 insane patients, there are, according to Seguin, 70 idiots who get teaching.

AUSTRIA.

	Founded.	Number of Pupils.	How Supported.
Prague .	1872	48	Private Charity.

SWITZERLAND.

	Founded.	Number of Pupils.	How Supported.
Anstalt zur Hoffnung, } Basel	1850	22	{ Boarders and Private Subscription.
Weissenheim .	1868	18 girls	
Hottingen, } Zurich	.	10 girls	Charitable Contributions.
Etoy, Pays } de Vaud	.	10	Private.

In 1873 there were two private training-schools at Lausanne, one of which I visited. M. Blume, formerly of the Chateau de Vennes, was the proprietor and teacher.

SWEDEN.

	Founded.	Number of Pupils	How Supported.
Stockholm .	1870	22	Gets a subsidy from the State of £277 a year.
Johannesberg, } near Mariestad	1868	35	{ Subsidy from the State of £277.
Strömsholm .	1871	10	

DENMARK.

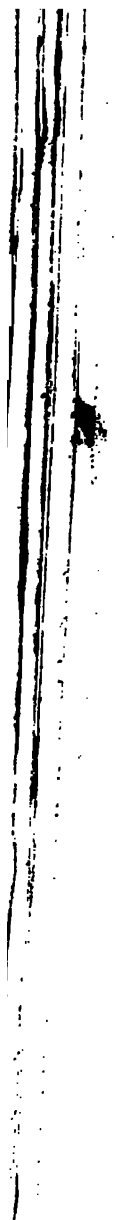
	Number of Pupils.
3 Institutions, Copenhagen	65

RUSSIA.

	Number of Pupils.	How Supported.
St. Petersburg .	20	Private. Gets a small grant from the town of Riga.
Riga .	10	

UNITED STATES.

	Founded.	Number of Pupils.	How Supported.
Barre, Massachusetts .	1848	70	{ Private institution.
Boston, do. .	1848	80	State.
Syracuse, New York .	1851	215	State.
Media, Pennsylvania .	1853	225	State.
Lakeville, Connec- } ticut	1858	85	State.
Columbus, Ohio .	1857	408	State.
Frankfort, Kentucky .	1860	120	State.
New York City, } Randall's Island }	1860	183	City.
Jacksonville, Illinois .	1865	100	State.
Fayville, Massa- } chusetts	1870	12	Private.
Glenwood, Iowa .	1876	14	State.



APPENDIX.

Hereditary Transmission of Insanity and Idiocy.

THE work of Ludwig Dahl, *Bidrag til kundskab om de Sindssyge i Norge* (on Insanity in Norway); Christiania, 1859, has been several times referred to in the course of this book. Mr. Dahl, consulting physician to the asylum at Gaustad, has taken much pains to inquire into the causes of insanity, and has given in his work eight genealogies, which illustrate in a very striking manner the transmission of neuroses from one common ancestor, sometimes descending directly to the children, more often passing over the immediate descendants, and appearing in the grandchildren. In these genealogies we see insanity alternating with idiocy, epilepsy, deaf-dumbness, and albinism. As it is of very little use merely referring to a book in Norse, it is hoped that the interest of the subject and the value of Dahl's results will justify me in republishing the genealogies. It is likely that in the quiet villages and little towns of Norway it is much easier to trace the history of a family than in our own country, where there is a considerable movement of the population towards the large towns or to the colonies. The correctness of the statements, of course, rests upon Dahl's authority, but there are indications in the book that he had taken some trouble to make original observations, examine witnesses, look up documents, and collate information before presenting the genealogies in the form in which they are published. He assures us that he was mindful of the existence of other factors in the production of insanity than hereditary transmission, and that he took it as a postulate that the frequency of insanity in a family should only be assigned to a hereditary cause when it could not be traced to other known causes.

Dahl gives the following as a summary of the most important of his conclusions :—

A. Acquired insanity and idiocy frequently appear side by side in the same family stock. Deaf-dumbness occurs frequently and albinism occurs occasionally in such families, whose members seem also predisposed to yield to the influences which produce leprosy.

B. The neurotic tendency is sometimes transmitted from the parents to the children, and can sometimes reach the latter although the disease may not have manifested itself in any of their forefathers in the direct ascending line, but only in their collateral relations. Direct transmission from father to child appears to me the rarest form of transmission. The presence of the neurotic tendency in the same members of the family stock is often shown by certain mental and bodily qualities.

C. When other potential causes are known to have operated in an especial manner on the members of any family, the frequent appearance of insanity cannot be held to prove a hereditary taint just as little does the circumstance that parents and children suffer from the same disease necessarily prove a hereditary tendency.

D. In certain families, even when widely spread, the neurotic tendency can have such strength that the probability of suffering from some form of insanity is fifteen times as great as it is out of the family.

E. The presence of a single such family may cause a marked increase of insanity in a district.

F. Intermarriages amongst members of such a family increase the probability of the occurrence of neurotic diseases amongst the children ; but marriages between members of different families which having a like constitutional taint have in all probability the same effect.

G. Figures intended to show the frequency of hereditary insanity must always be open to question, as they rest on somewhat uncertain diagnosis.

The genealogies are printed as they are in Dahl's book, but I have added *m.* and *f.* after each name to indicate the sex which, in many instances, could not be guessed by the English

reader from the name alone. As Dahl seems doubtful of the trustworthiness of the genealogy No. 8, it has been omitted.

The following notes about the genealogies have been gathered from the book :—

Respecting No. 1, he writes, "I have myself had occasion to examine four of the patients named, and I have no ground for believing that the statements respecting the others should not also be trustworthy."

Respecting genealogy No. 3, he writes, "The surest, not to say the only, method of judging with precision of the results and strength of such a tendency within a certain family is to count all its members, and to compare the frequency of the disease amongst them with the frequency of its occurrence amongst the whole population in which they dwell. This is what I have been in a position to do with Ejvind's family genealogy, No. 3, from Flesberg, in Numedal, which also deserves attention, as showing the common nature in the tendency to deaf-dumbness and mental disease. In this family there are nine who are or have been insane or idiotic, four deaf and dumb, and one epileptic. All the four deaf and dumb, and eight of the insane, are living. In Flesberg parish I have found twenty-four insane persons, and six deaf and dumb. In the census returns there are given eleven deaf and dumb; but five of these were also reckoned amongst the idiots. Therefore this family comprises twelve, or two-fifths, of all the cases of insanity and deaf-dumbness in the parish. In order to ascertain how extended the family might be, I undertook to carefully enumerate all the descendants of Ejvind in the parish. With help of one of his grandsons (son's son), and several other members of the family, I found that their number amounted to 126. Flesberg has a population of 2920. Whilst, therefore, the proportion in this family is one insane or deaf and dumb to ten or eleven members, it is in the rest of the population 2794 as one to 155.

The tendency to neurosis, or the probability of suffering therefrom, is therefore in this family fifteen times as great as outside of it.

In the pedigree of the Ejvind family, No. 3, which may be considered the richest in the parish, only one intermarriage has

taken place, the result being a complete idiot. The family connections further back are unknown to me, and I have been unable to find any blood-relationship between Ejvind's child or grandchildren and their spouses. Ejvind himself is described as a capable and orderly man; of his sons, Kittel and, to some extent, Gullick are said to have been given to dissipation. The most remarkable are Hellik's daughters, who are represented as gloomy and violent character, and to have ill-used their children. The different members of the family did not abide in one place and were exposed to no particular influences any more than the neighbours.

Respecting the genealogies Nos. 4 and 5, Dahl remarks that the two families are to some extent mutually connected, and both belonging to the parish of Kinservik, in Hardanger. "That I present so complete a pedigree," he writes, "is partly owing to the circumstance that the people of Hardanger preserve with great interest the recollection of their origin, especially when, in the present instance, it is from a clergyman or clergyman's son, and partly to the zeal and skill with which Mr. N. Kor, the minister of the parish, has assisted me in my efforts to collect information."

In Hovland's family, genealogy No. 5, the tendency to deafness seems to have come through Jacob Hovland's ancestors and not through his wives.

Dahl thinks it improbable that leprosy should be the result of a common hereditary tendency with insanity, and gives particulars to show that the leprosy had been brought into Hovland's family in another way.

In pedigree No. 6 the great-grandmother has been given instead of the male ancestor, because, by going back to the mother's father, we find him to have been the progenitor of the other idiots, one of whom was deaf and dumb.

"From most of the tables given it would appear that the hereditary tendency makes itself less felt in direct transmission, that is the parents and children both suffering from the same disease. This is, no doubt, owing to some extent to the fact that insanity appearing in youth often hinders marriage and the perpetuation of the race.

"In table No. 2 (children) we see the frightful results of marriage in a man who was at one time insane. The report of Gaustad Asylum describes a patient whose father's mother, father's father, two paternal uncles, and four paternal aunts, were or had been subject to mental disease."

Heredity in Deaf-Dumbness.

The general impression that the children of deaf mutes are not liable to inherit the deficiency of their parents receives a striking contradiction from some observations published in the Forty-fifth Annual Report of the American Asylum at Hartford (1861) for the Instruction and Education of the Deaf and Dumb. Mr. John C. Parsons, the clerk of that institution, has ascertained that in New England marriages of deaf mutes are much commoner than they were formerly, and in most cases both parties are deaf and dumb. This he attributes to young people of different sexes becoming acquainted with one another at the deaf and dumb schools, and to the increased capability of the deaf and dumb to maintain themselves, and consequently to marry. At three gatherings of educated deaf mutes, Mr. Parsons ascertained that 232 of them were married; 29 deaf and dumb men and 19 deaf and dumb women had husbands and wives possessed of their hearing; but in 106 families both husband and wife were deaf and dumb.

There was one or more children in 113 of these families, in all 287 children. Of these children, 23 were deaf and dumb, and they belonged to twelve families. In these twelve families ten had both father and mother born deaf. In one family the father had lost his hearing when two years old; in another the father could hear and speak; but the mother was a congenital mute, and several of their parents had deaf relations.

From these and other facts Mr. Parsons concludes that, if two deaf mutes marry, both of whom lost hearing in early life, they will be no more likely to have deaf and dumb children than persons who can hear and speak.

"If a congenital deaf mute marry a hearing and speaking person and have children, the probability that there will be at least one deaf and dumb child in such a family will be as *one* to

sixteen. The result will be the same in case one born deaf should marry a mute who lost hearing in childhood.

"If two congenital deaf mutes marry, the probability that there will be one or more deaf and dumb children will be as *nine to eight*."

The ratio in these statements has reference to families only ; but in considering the proportion of children of deaf mutes, who inherit deficiencies of their parents, he concludes "that the deaf and dumb children of parents, only one of whom is congenitally deaf, will be to their hearing children as *four to forty-seven*, or about one to twelve.

"That the deaf and dumb children of parents, both of whom are congenitally deaf, will be to their hearing children as *three to five*."

He adds : "There seems to be a tendency in some families to deafness, which occasionally manifests itself in two or three collateral branches and then disappears." These interesting and apparently carefully-made observations tend to draw closer the parallels between idiocy and deaf-dumbness. It is to be regretted that Mr. Parsons did not also include within his inquiry the occurrence of idiocy and other allied neuroses in these families.

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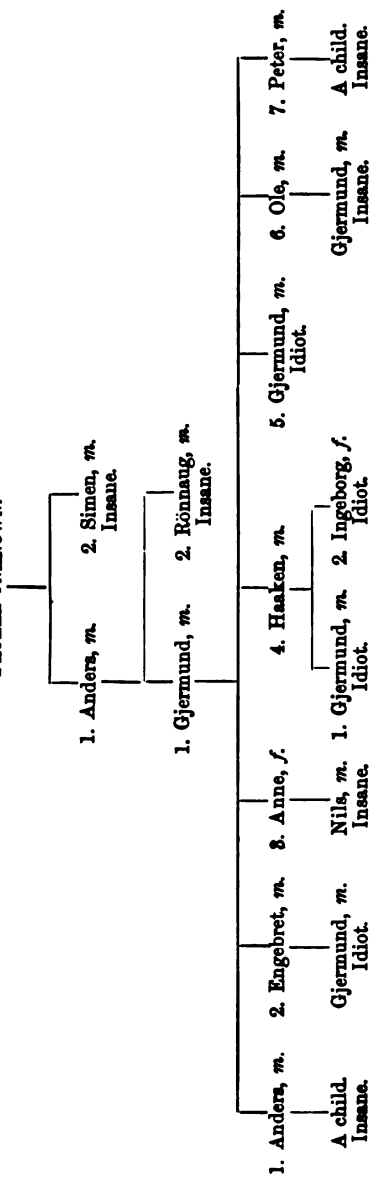
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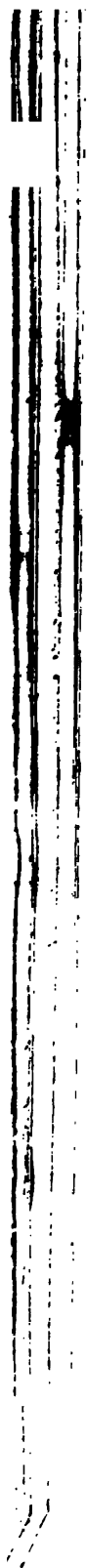
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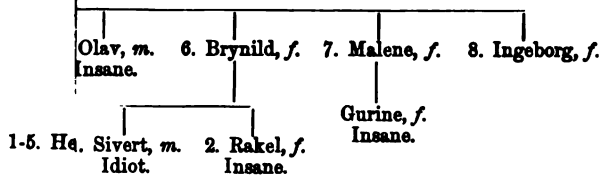


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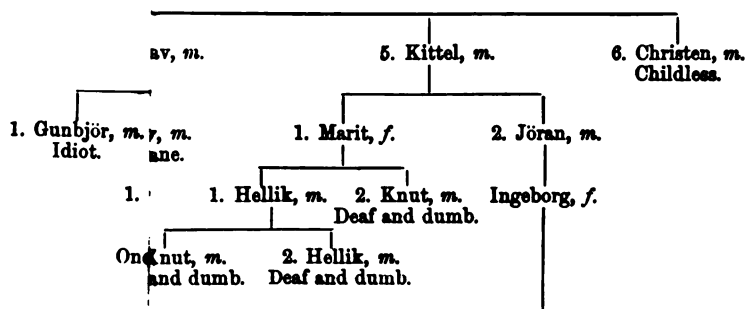




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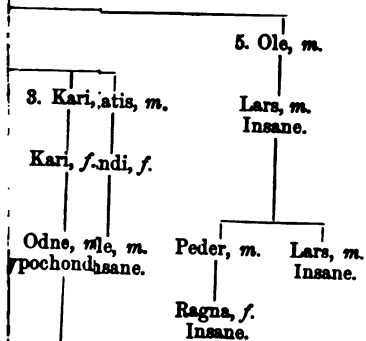


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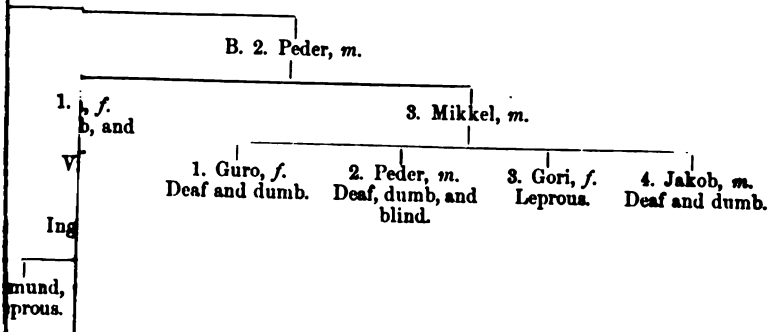


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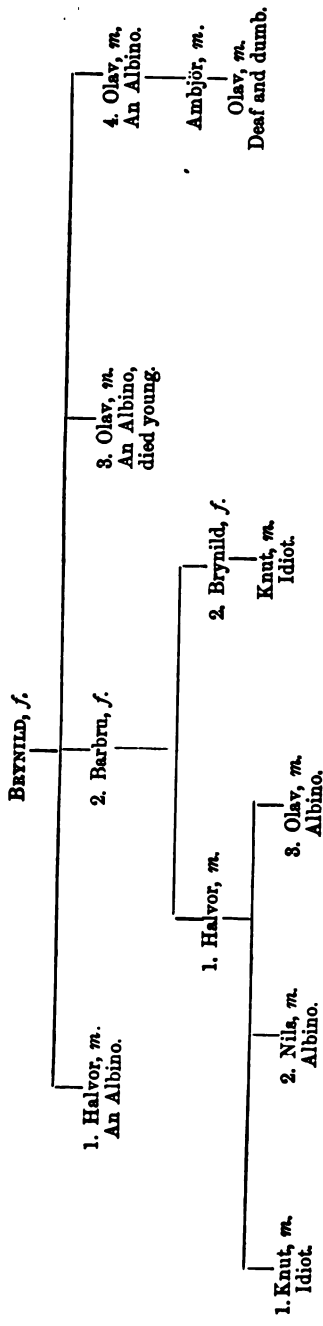
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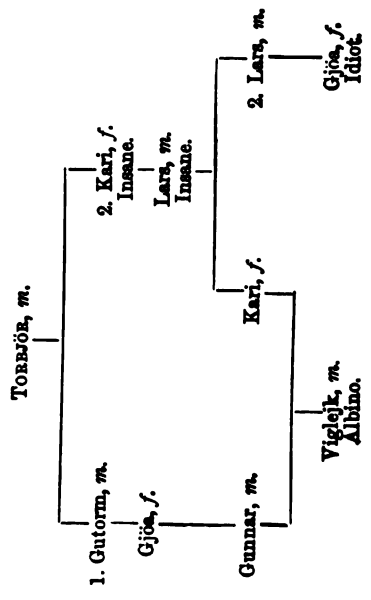
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